The Place of Artificial Reefs in the Lives of Small-scale Fishers in Terengganu, Malaysia

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Declaration

I hereby declare that the thesis has been composed by me, that the work is my own, and that it has not been submitted for any other degree or professional qualification.

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To Feeming, for everything, I am grateful.

Abstract

Mainly deployed with the objective of enhancing fisheries resources, artificial reefs began to gain scientific attention in the 1970s. They continue to be a popular agenda in fisheries management, largely due to their potential in improving the lives of coastal communities. Current performance evaluations of artificial reefs, however, continue to focus more on reef effects on the biology and fishing gain of the area where they are deployed. This is despite repeated calls to expand the performance evaluation to include input from artificial reefs users. This thesis examines the dimensions of small-scale fisher-folks' relations with artificial reefs in Terengganu, Malaysia. Using the livelihood approach, the research focuses on non bio-economics data and explores the "currently ignored" domains of artificial reefs to examine the various components of small-scale fishers' livelihood-making. It reveals important insights of the social, cultural, economic, political and ecological changes that have been affected by artificial reef programmes from the perspectives of fishing communities. Based on the results of in-depth interviews carried out in Setiu, Terengganu, it is concluded that although artificial reefs are perceived to enhance local fisheries resources, small-scale fisher-folks' opportunity to benefit from them depends much on how artificial reefs fit into these fishers' fishing strategies, which are strongly related to their livelihood assets, particularly their social and human capitals. Furthermore, artificial reefs' impacts on Setiu small-scale fishers' livelihood are related to their effect on illegal commercial fishery in the area, where although their presence do deter trawl fishery, artificial reefs are paradoxically an ideal fishing site for purse seine fishery. By exploring these various human dimensions of artificial reefs, the thesis offers a broader perspective on the evaluation of this complex marine phenomenon.

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Chapter I

Artificial reefs and their development in Malaysia

This thesis deals with artificial reefs, specifically those created for fisheries. I first became involved with artificial reefs in 2004 when the marine conservation project that I volunteered for in Malaysia turned out to be a large-scale government-sponsored artificial reef deployment programme: the three-day fully sponsored experience left me quite bewildered. Overwhelmed to find so many people[1] who were there just for the event on the usually almost vacant Tinggi Island[2], I could not help but wonder, during a boisterous firework display after the Royal Prince's opening speech, about the following:

(a) if the resources spent on this high-profile conservation effort (organised by the state government to mark the area's designation as national marine park) were ecologically justified as the local marine environment was to my knowledge in a healthy state[3] and would continue to thrive even without the introduction of the PVC[4] reef; and

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[1] The fully sponsored three-day programme involved some three hundred divers from various state agencies and NGOs, as well as a number of non diving volunteers such as me. Apart from the large royal entourage that accompanied the Johor Crown Prince who officiated the event, about fifty members of the press were also present.

[2] The island is part of the sparsely inhabited Tinggi Island Archipelago which is located 20 nautical miles off the Northeastern coast of the Malaysian state of Johor.

[3] I have formerly been to the island while working on various marine conservation programmes under a local environmental NGO. Our surveys of the area's marine ecosystem assured us that it was in good health, due to the lack of anthropogenic and environmental disturbances.

[4] This refers to a type of artificial reefs structure that is made of polyvinyl chloride (PVC) pipes

(b) what the local islanders, who did not appear much involved in the deployment programme and whom I heard had expressed concerns about the implications of the area's new marine park status on their fishing operations, thought about the whole event.

These interrogations lingered in my mind well after I left the island, and were reinforced by my subsequent encounters with the subject of artificial reefs. In relation to the first interrogation, a casual conversation with a few marine-conservationists some months after the Tinggi Island trip brought to my attention their concerns on the suitability of deploying artificial reefs in marine parks. This made me more intrigued about the subject. By 2005, I was already involved in discussions mooted by an environmental NGO to call for careful assessment of artificial reefs deployment proposals in sensitive marine areas in Malaysia. During these discussions, I became aware of the growing presence of artificial reefs in the country's marine environment, despite a lack of proper regulation and performance monitoring and evaluation. Later that year, I relocated to the Malaysian state of Terengganu, which was becoming the most active fisheries-based artificial reefs site in the country thanks to the state's revenues from petroleum that were channeling huge funds towards artificial reefs creation that was lauded to contribute towards livelihood improvement of poor small scale fisherfolks. Amidst criticism on the absence of mechanism to review the performance of these expensive state-funded fisheries enhancement tools, INOS[5] was requested in 2006 to propose an assessment of artificial reefs performance to LKIM[6]. The proposal was accepted, but only the physical assessment using (expensive) state-of-the-art

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[5] Institute of Oceanography and the Environment, at the Universiti Malaysia Terengganu where I was based.

[6] *Lembaga Kemajuan Ikan Malaysia* or Malaysian Fisheries Development Board, which is the government's main implementing body for fisheries-based artificial reefs programmes.

technologies were approved, while the smaller fisher-based socio-economic component was shelved for later use, reportedly because there was insufficient funding. This increased my earlier suspicion that there is probably very little, if any, user-based input collected on artificial reefs studies. This influx of information compelled me to pursue the topic further. Thus began my dive into the little explored realms of human-artificial reefs interactions.

In this chapter, I introduce artificial reefs broadly, discuss their contested definitions and give an overview of their development and distribution in the world. I then proceed to: highlight how the concept of artificial reefs has long existed in traditional Malaysian fishery, though the use of *unjang*[7]; provide an historical perspective on the principal events that have transformed traditional approaches, influenced modern reef development and contributed to defining a new era of Malaysian fishery and; within this context, situate my research questions and research objectives.

Artificial reefs: an introduction

Artificial reefs have been an area of scientific interest since the 1970's leading to the deployment of large-scale artificial reefs in North America (Clark 1974 et al, Bortone 2006). The most extensive definition on artificial reefs is the one used by the European Convention for the Protection of the Marine Environment of the North-East Atlantic, also known as the Oslo-Paris (OSPAR) Convention (OSPAR 1999). In this document, an artificial reef is defined as "a submerged structure with a deliberate placement on the sea bed to imitate some of the characteristics of a natural reef" (OSPAR 1999: OSPAR 99/15/1-E Annex 6). The European Artificial Reef Research Network (EARRN) uses a similar

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[7] Traditional fish aggregating device used by Malay fishers

definition[8], where the term 'submerged' is intentionally used to exclude structures such as breakwaters, piers and jetties and 'deliberate' to distinguish "true artificial reefs from structures which may claim that title in order to gain some ecological credibility" (Pickering et al 1999:505). A simpler definition is given by the Food and Agriculture Organisation (FAO): artificial reefs are human-made structures placed on the sea bottom to gather fish (FAO 2007). Under this broader definition, artificial reefs are also referred to as either 'fish aggregating devices' (by the fisheries sector) or 'artificial habitats' (by marine scientists). This latter appellation is preferred, as it highlight the reefs' role in harbouring marine life rather than as an exclusively fish aggregating device (Seaman 2002; Relini et al 2007). This variation in nomenclature illustrates an existing divide between those involved in artificial reefs research and those involved in their development and deployment: conservationists on one side and fisheries production on the other.

The Malaysian scenario exemplifies this divide (Ebber 2003). In the Malaysian Fisheries Act 1985 which regulates fishing activities in Malaysia, the term *alat peranti ikan* or 'fish aggregating device' is used to mean "any structure or device of permanent or semi-permanent nature made from any material and used to lure or aggregate fish for the purpose of fishing" (Section 2, Fisheries Act 1985). Accordingly, LKIM, which implements artificial reefs programmes as part of the national fishing community development agenda calls the devices they developed *unjam* or 'fish aggregating device'. However, the term *tukun tiruan* or artificial reefs is used by the South East Asia Fisheries Development Centre (SEAFDEC), the agency in charge of artificial reefs research and development (R&D) for the Department of Fisheries. The

[8] The EARNN terms artificial reefs as `submerged structures placed on the seabed deliberately, to mimic some characteristics of natural reefs' (see Jensen 1997)

different terms are used to differentiate the objectives set for the development of artificial reefs in respective agencies. *Tukun tiruan* is developed mainly to create habitats that are critical for the protection, feeding, breeding of many fish species and as a nursery ground for other invertebrates (Sukarno et al 1994) and are usually preferred to be left unexploited. *Unjam* however is developed to create alternative fishing grounds (LKIM 2005). For the purpose of this research which focuses on all man-made structures that are deployed in the marine environment for fisheries purposes, both *unjam* and *tukun tiruan* are considered and are referred to as artificial reefs in this thesis[9].

Local fishers are often cited as the first to initiate artificial reef deployment in their effort to create new fish habitats or fish aggregating devices (Chou 1997; Ebber 2003; Relini et al 2007). But it was through their collaboration with fisheries scientists that the technical specifications of the devices were improved, transforming this 'backyard' to a 'high-tech' technology. In many countries around the world, the big break for artificial reefs happened when marine and fisheries scientists began to take a serious interest in artificial reefs in the 1970s (Bombace, Fabi and Fiorentini 2000; Delmendo 1991; Jensen et al 2000a). The Conference on Artificial Reefs and Habitats (CARAH) which was the first international conference dedicated to artificial reefs research and development was held in 1974 in Texas, USA to meet the growing interest on artificial reefs among fisheries management scientists around the world (Clark et al 1974). The fishers-scientists collaboration attracted funds from the State and development agencies (Balgos 1994; Relini et al 2007). The main reason for the financial support given for artificial reef programmes lies not only in the potential that they have as

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[9] The terms *unjam* and *tukun tiruan* will be used as and when the discussion on the one or the other type of artificial reefs requires specification

coastal zone and fisheries management tool (Collins and Lockwood 2000) but also as a progressive development tool to help alleviate poverty in coastal regions, which resulted in an expansion of artificial reefs programmes worldwide (Santos and Monteiro 2007; Seaman 2007). Therefore, from being made of just old cars, old fishing vessels, bamboo-made structures or other waste materials, there are now artificial reefs which are sophisticated structures that are specially designed and are made of expensive materials (Chou 1997; Seaman 2007).

Artificial reefs now exist in different designs and sizes (see Figure 1) and are deployed not only for fisheries purposes but also to tackle various other environmental problems. When conservation became an important agenda worldwide, artificial reefs deployment programmes became a popular activity for marine conservation agencies and related associations as they were found to be useful as marine ecosystem enhancer (Pickering et al 1999; Seaman 2007). In addition, artificial reefs are deemed useful for coastal protection, where they are deployed to mitigate against coastal erosion as well as an effective enforcement tool to protect inshore fisheries resources from illegal and destructive trawling activities (Latun and Abdullah 1990; Jensen 2000; Relini et al 2007; Santos and Monteiro 2007). For these reasons, artificial reefs could be found in almost every coastal country in the world. Artificial reefs are widely used to create good fishing grounds and to enhance resources in developing nations in Asia, the Pacific region and Africa (Watanuki and Gonzales 2006) as well as developed ones in Europe and USA where they are even developed for tourism purposes (Jensen et al 2000). However, fisheries related artificial reefs are the most extensively deployed (Pickering et al 1999; Bortone 2006). With the objective of enhancing fisheries resources by creating artificial fish habitats (Delmendo 1991) and providing alternative fishing sites for local inshore

fishers, they became an important agenda for fisheries related agencies that are responsible to find solutions to the depletion of coastal fisheries resources due to natural habitat destruction (Pickering and Whitmarsh 1997).

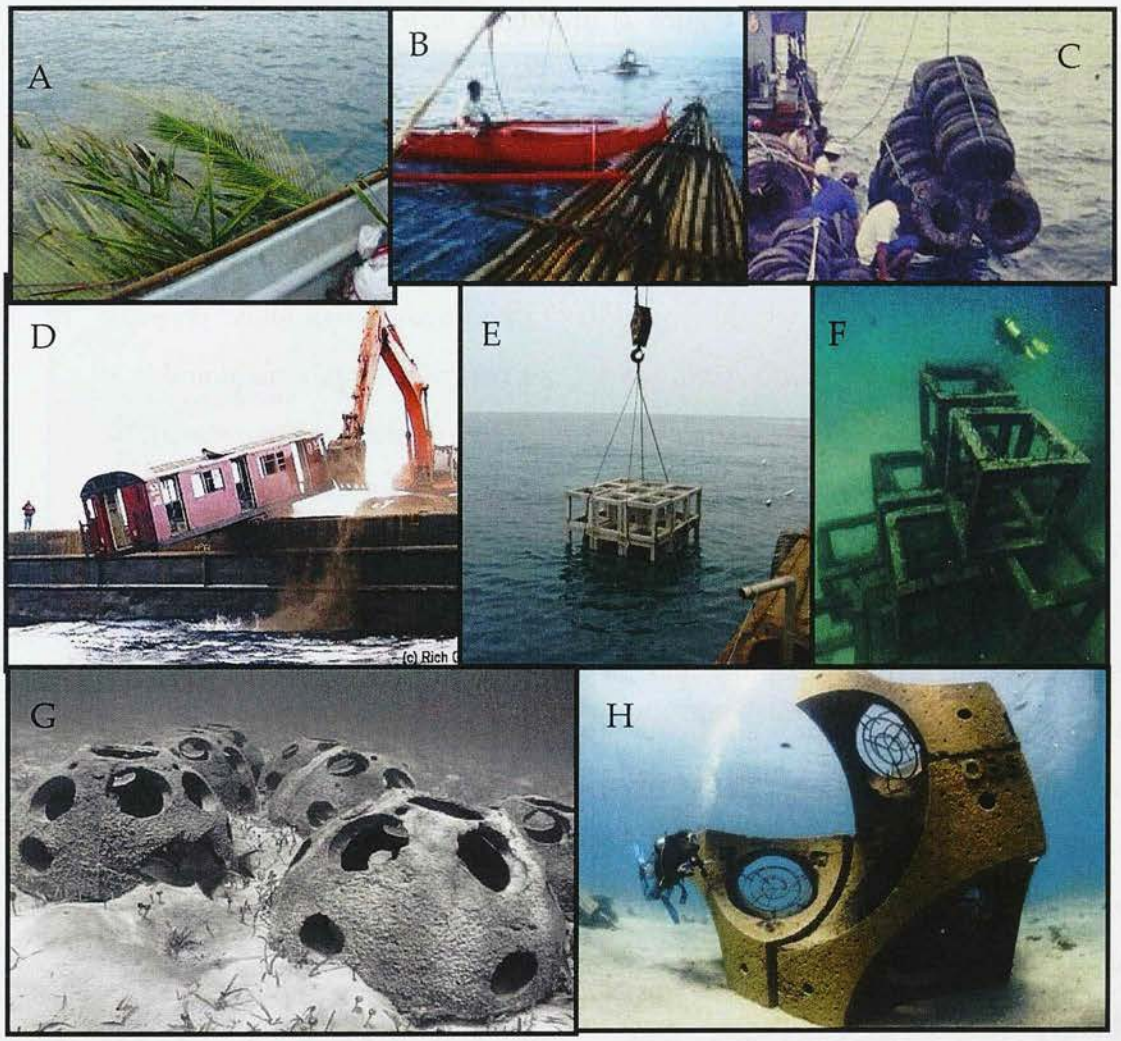

Figure 1 Various types and designs of artificial reefs that are made of various materials (naturally available materials in A and B, waste materials in C and D, and specially designated materials in E,F,H)

Artificial reefs development in Malaysia: at a crossroad between tradition and modernity

Despite a long coastline that stretches 4,675 km (Peninsular Malaysia 2,068 km, East Malaysia 2,607 km; see Figure 2) in length, fishery is actually a small sector of the Malaysian economy. According to the Department of Fisheries' report for 2009, the sector that officially [10]employs 149,618 fishers contributed only 1.3% to the country's Gross National Production (Department of Fisheries 2010). Nonetheless, it is and has always been an important one (Ishak and Chang 1993) for a nation which two-thirds of its animal protein intake consists of fish (Mohamed 1991; FAO 2009), as well as a source of employment and in a smaller extent, of foreign exchange (FAO 2009). According to Department of Fisheries' 2006 Report, 97,947 individuals are employed by the fishery sector contributed more than RM5 billion for more than 1.6 million tonnes of marine fish landing and aquaculture production. Little is known of fishery in the Bornean states although fishing and gleaning has always been an important occupation among the Sama sea-nomads of North and East Sabah who also use nets and free-dive to fish (Nolde 2009). For Peninsular Malaysia however, Ishak and Chang (1993) identified four main phases in Malaysian fishing technology expansion and adoption, which paved the way for the traditional Malaysian fishery towards a modern one. It may be useful to clarify here that the traditional context of fishery refers to a type of fishery which use fishing appliances that have existed before the era of mechanization while the modern context of fishery refers to the type of fishery which use fishing appliances that

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[10] This figure represents the number of fishers who are registered with the Department of Fisheries. The actual number of people involved in fishery is believed to be higher as many fishers who do not operate a powered vessel or only fish occasionally do not register as fishers (APEC 2008)

have existed since the era of mechanization (see Chapter III for examples of traditional and modern fishing gears used in Setiu, Terengganu, Malaysia). In the following sections, I discuss the concept of artificial reefs in both traditional and modern Malaysian fisheries context.

Figure 2 Map of Malaysia
Source: http://geography.about.com/library/cia/blcmalaysia.htm

Unjang: an artificial reefs concept from a traditional Malaysian fishery perspective

According to Ishak and Chang (1993), two transitional phases towards the expansion and adoption of technology in Malaysian fisheries occurred during the colonial period (Ishak and Chang, 1993). The first phase was the development of purse seine gear for harvesting pelagic species in the early 1900s, followed later by the gradual use of powered engines in the 1930s. But these technological changes had little effect on the existing traditional fishing operations in the country. In fact, up to 1950s, fisheries in Malaysia then were still mainly artisanal in nature (Taupek and Nasir 2003) and were

predominantly Malay in ethnicity in the east coast of the Malaysian Peninsula (Firth 1975, Parry 1954). To Firth (1975: 5), these Malay fishers "formed part of a peasant economy: with relatively simple, non-mechanical technology; small-scale production units; and a substantial production for subsistence as well as for the market". Operated from small non-motorised boats, traditional fishing[11] using *kail* (hook and line), *mengolok* (baited hook and line) or a variety of gill nets (*pukat kembung, pukat dalam, pukat tenggelam*) and drift nets (*pukat hanyut*) were used by fishers who fish individually or in pairs while those who fished in groups used larger traditional gears such as *pukat takur* or *tangkul* (lift nets), *pukat payang* (boat seines) and *pukat tarik* (beach seines) to capture various species (see Figure 3a and 3b for examples of these various traditional gears as recorded by Parry (1954) and Firth (1975)).

All these fishing gears target mid-water, pelagic[12] fish apart from *bubu* (unbaited trap) that target demersal[13] fish (Parry 1954). Fishing stakes are used in the west coast but not in the east coast due to the exposure to the South China Sea and absence of large mud and sand banks along the coast. Other smaller gears are use to fish in shallower waters as well as gleaning that carried out in estuaries and mudflats mainly in the south and west coast of Peninsular Malaysia[14].

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[11] Traditional fishing is defined based on the fishing appliances used by the fisher. It is defined as traditional in the Malaysian Fisheries Act 1985 as long as they are operated using non-motorised fishing vessels or motorised fishing vessels of not more than forty gross registered tonnage.

[12] Pelagic fish species are those that spend most of their life swimming in the upper water column as opposed to resting on the bottom. Semi-pelagic species are those found in mid-water columm.

[13] Demersal fish live on or near the bottom area of water bodies (rivers, sea or lakes).

[14] See Burdon (1954) and Parry (1954) for a detailed description of fishing methods used in Singapore in the former and Kelantan and Terengganu in the latter.

Although traditional fishing involved only the men folk, "partly by tradition but mainly by physical necessity" (Firth 1975: 3), fishery matters such as "fishing, boats, prices, nets, and other topics related to fishing" are of concern to all members of the community, including women (Fraser 1966) who are actively involved in various post-fishing activities such as selling, cleaning, curing and dying of fish and making fisheries by-products such as *budu*[15] and *belacan*[16]. They are also involved in pre-fishing activities such as spinning cotton yarn for nets and taking commissioned-work for actual net-making (Firth 1975). These fisheries related activities took place in the coastal fishing bases off the fishing grounds at sea, which ranged from small kampongs[17] to big coastal towns, to which the fishers identify with.

These traditional fishers adopted their fishing methods and equipment to suit local conditions and their social conditions (Burdon 1954, Parry 1954). In the east coast of Peninsular Malaysia for example, fishers left in the early morning to benefit from regular morning land breeze and return as early as noontime when the sea breeze begin until sunset when it dies out. They also constructed boats that complement the local climatic and geographical features (Gibson-Hill 1954), such as designing the *perahu* (boat) *payang* to fish with the earlier mentioned *pukat payang* and applying adjustable prow for use during monsoon and non-monsoon months (Firth 1975).

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[15] A liquid condiment that is made by fermenting anchovy in sea salt. It is only made and much consumed in the east coast of Malaysia.

[16] A condiment in solid form that is made from *udang baring* (krill) and salt and dried in the sun.

[17] While Parry (1954) simply defined *kampong* as a Malay village (p 88), Firth (1963) defined it as a term that "literally means a grouping or gathering together, which commonly applied to a village or hamlet and includes not merely the clusters of buildings but also the mass of coconut palms, fruit trees and other appurtenances of the settlement" (p4).

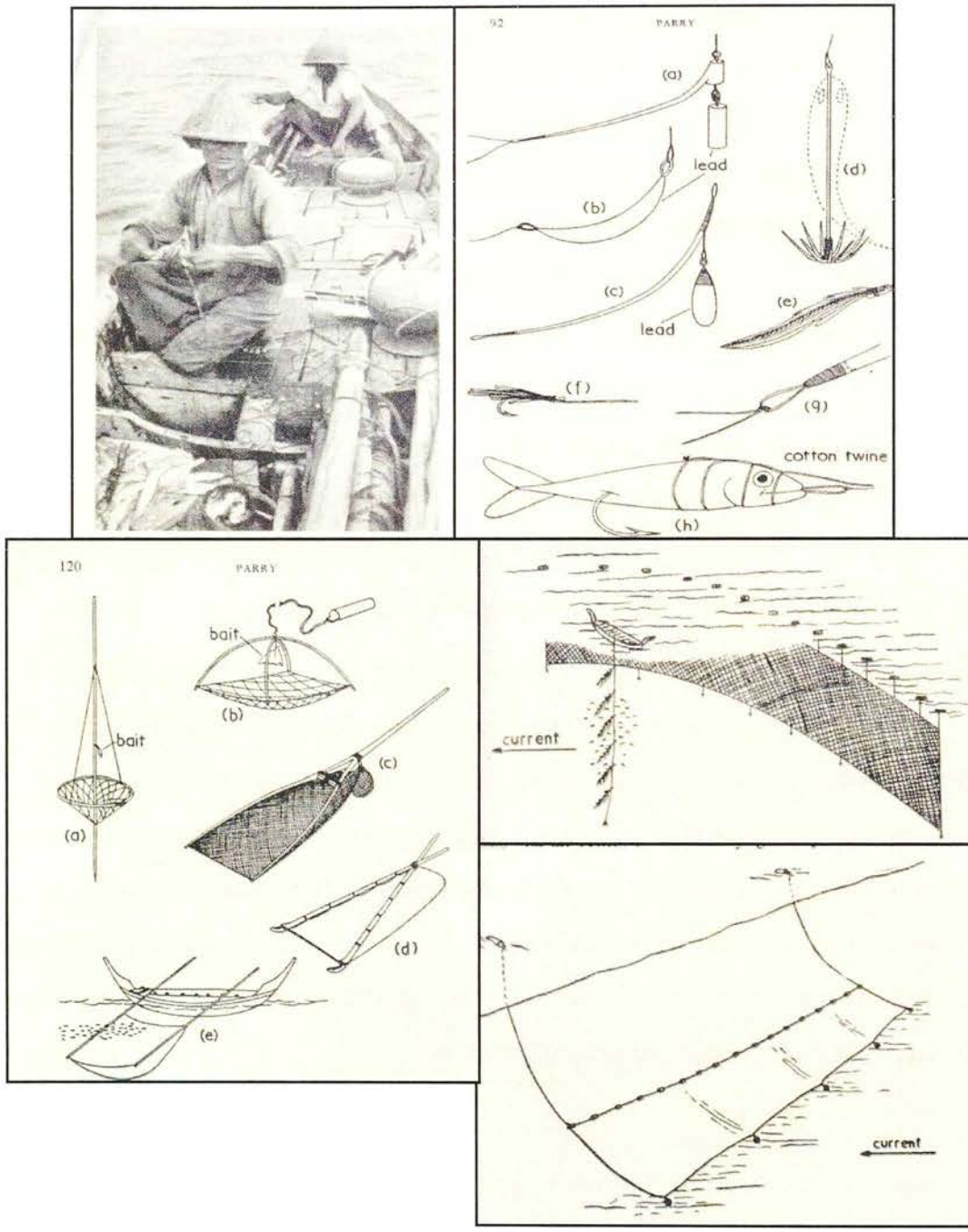

Figure 3a. Various types of Malay traditional individual fishing methods (clockwise from top left: Line fishermen at work and their equipment (various fish hooks), Gill-net fishing, trolling and various small fishing gears)
Sources: Plate 1 in Firth (1975) and Figures 1,3,4 and 11 in Parry (1954)

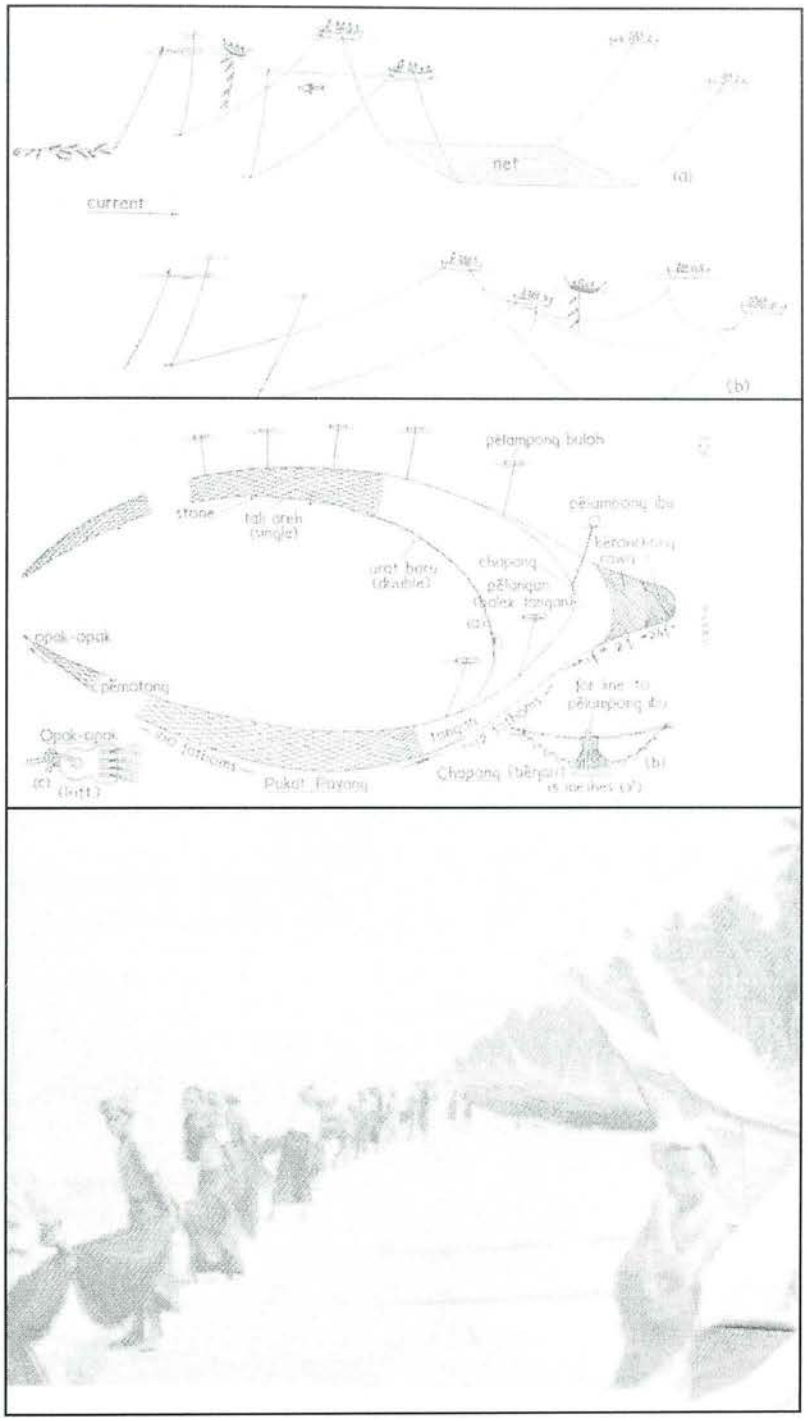

Figure 3b. Various types of traditional group fishing methods (from top to bottom: lift net, *Payang* net and beach seine)
Sources: Figures 8 and 13 in Parry (1954) and Plate VIB in Firth (1975)

Fishers in the east coast of the Malaysian Peninsula have been reported

to use artificial reefs since the 1900s by sinking derelict wooden boats, bundles of tree branches, twigs and rocks (Hung 1988). The latter refers to *unjam* or *unjang*[18] that they use to facilitate fishing operations. This fish aggregating device is similar to *payao* that were used by their counterparts in the Phillipines (Aprieto 1988; Balgos 1995; Delmendo 1991). It was a subject of much interest to both Firth (1975) and Parry (1954) during their stay in the northeast coastal region of the Malaysian Peninsula, the former to conduct an economic-anthropological study on the Malay fishers and the latter on the fishing methods in the region. Small size *unjang* (see Figure 4) are made by hook and line as well as gill net fishers to attract specific types of fish, such as *Merah* and *Selar*. These are either taken daily to fish or left at chosen locations to be checked as and when by the owner. Coconut fronds and branches of a leafy tree, usually *Teja* are bunched together with a rope. The daily *unjang* are attached to a float while permanent types are submerged using rock boulders. Bigger and more complex devices known as *unjang besar* (meaning big fish aggregating device) were constructed for the larger fishing operations such as *takur* nets. Parry (1954) found the *unjang* to be "the most interesting item of equipment" (p110) that:

".. appears to work on the fact that any large stationary object in mid-sea soon becomes the centre of an aggregation for fish, whether this is because of shade, shelter, or the collection of small food species in these places is not known for certain. It is sufficient to say that the artificial shelters of leaves undoubtedly attract shoals of pelagic fish. This means that the men working these *(takur)*

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[18] The fish aggregating device is known as *unjam* in the standard Malay language but in the east coast of Peninsular Malaysia where it is most widely used, the word *unjang* applies. When the term *unjang* is used to refer to the devices set up by fishers while the term *unjam* is used to refer to the devices set up by the LKIM.

nets never have to search very widely for their fish: they need only visit one or more *unjang* to see if there are fish present."

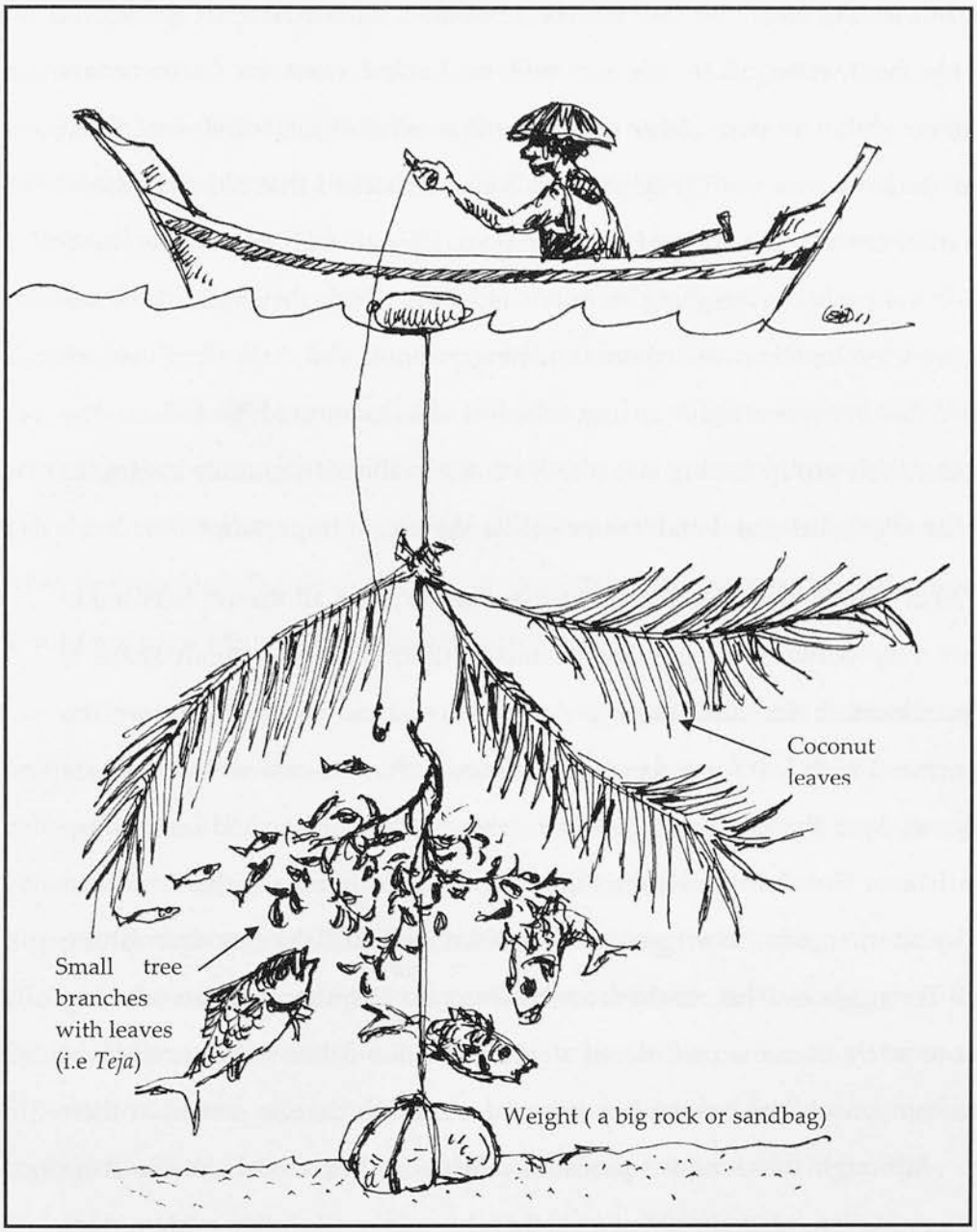

Figure 4. Illustration of a deployed *unjang* being used by a line fisher

Like Parry, Firth (1975) noted that the *pukat takur* fishing group use a small *unjang* or *leret* from a boat to lead the fish shoal away from the large permanent *unjang besar* and into the centre of the awaiting net. At the signal given by the master diver, the net will be hauled from its four corners simultaneously. The *pukat takur* groups own several *unjangs* each and these devices are left at sea until they rot. Both also remarked that although hook and line fishers usually worked on their own, they would also cooperate to build the *unjang besar,* weighing as much as 5 tons which they sink to the sea bottom and use together as a common fishing ground. But Firth (ibid) further observed that because a *kepala unjang,* which is an allocation of the fish income from *pukat takur* group fishing was always made to the owner of the *unjang,* to whom the *unjang* belonged and its size held a significant importance.

Firth's work had also informed that the way the allocation was made however vary between areas. For example, although a first tenth share is usually allocated for the *unjang,* in certain areas the share may be supplemented with fish for *makan lauk*[19] or bigger share of two-tenth or even a third like in Ayer Tawar, Terengganu is made when the *unjang* had been set up by line fishers. But shares are sometimes not allocated to unjang that had been set up by another *pukat takur* group as practised in Batu Rakit, another fishing area in Terengganu. This could lead however to disputes between fishing groups, as such an act is considered stealing. A line fisher however did not need to compensate the *pukat takur* groups for the fish that he caught at their *unjang.* Although these varied practices may seem like trivial details, their closer examination interestingly reveals that the *unjang* allocation system does

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[19] Rice is the staple diet in Malay households but it is eaten with *lauk,* the dish(es) that complement the rich. Fish is one main type of *lauk* and in traditional fishery, a portion of the fish caught is set aside for this purpose.

in fact in principle favour smaller-scale fishers, especially line fishers. The reason is firstly because they are considered to have had to work harder to set up the *unjang*- they would have had to take the initiative to assemble all the materials needed for the device and carry out the deployment themselves using their small boats, while the setting up of a *pukat takur*'s *unjang* would have been organised by the leader of the fishing group and carried out collectively. Secondly, the line fishers had set up the *unjangs* specifically to create a fishing spot for their own use and would not only face a great loss should the bigger operations make a catch there due to the size of the catch that *pukat takur* operations is able to make; but also because it was widely acknowledged among fishers (based on their local fisheries knowledge that fish shoal would emit a scream when caught in the net and ward off other fish from approaching the area) that the *unjangs* that had been successfully used would not for a while be attractive to fish.

To regulate the use of *unjang*, a certain code of conduct is in force based on the principle that fishers in the same fishing area know to whom the *unjangs* belong and that the devices that belong to various individuals and groups become a common pool of fishing resources. This however does not mean that disputes do not occur. Moreover, although fishing from *unjang* of others is allowed when compensated; it may not be an easy rule to abide to when the fishing ground is beyond the local fishing area, as the owners may be more difficult to identify. Nonetheless, the *unjang* has survived to this day, and its concept has even found a place in artificial reefs development in Malaysia.

Float

Artificial reefs programmes in a new era of Malaysian Fisheries: a solution for a depleting resource

The local fishery scenario as described in the previous section began to change after the Second World War. As economic development became the new

impetus, institutional and technological changes were introduced in the country (Gomez and Jomo 1999). Artificial reefs development then entered a 'modern' era (Latun and Abdullah 1991, Delmendo 1991) where they were developed as a tool to counter a drastic resource decline in late 1960s as a result of the introduction of modern fishing technology such as trawl fishery in 1950s (Ahmad et al 2008, Mohamed 1991).

The arrival of British rule in the late 18th century, based on a close analysis of the information from the Department of Fisheries (2009), seemed to have brought in little change to the country's local fishery: The British were not responsible in promoting these early technological changes, which were instead all introduced by the more enterprising fishers in the west coast of Malaya. After the northern Malay states became part of the British Malaya in 1901, the influx of immigration from Thailand to these states contributed towards developing the local fishery into an economic activity. Although a fisheries management agency was established with the creation of the British Colonial Fisheries Unit in 1894 to control fishing activities in the Straits of Malaya states (Singapore, Melaka and Pulau Pinang) and the Federated Malay states (Perak, Selangor, Kedah, Pahang and Johor) which at that time were carried out in small-scale and for subsistence by the coastal and riverine communities, it did little more than document local fishing operations. This, however, soon changed when British rule returned after the Second World War.

In 1946 the Department of Fisheries of Malayan Union and Singapore was created. Under this new agency, a more developmental approach was introduced under the Fishery Industrial Development Policy which outlined the administrative affairs, established fisheries training and research institutions (Department of Fisheries 2009). After the country's independence

in 31 August 1957, the department became the Fisheries Section of the Federal Malay States under the Ministry of Agriculture and Joint Enterprises. It was during this post-war period that material-related technological changes were introduced to Malaysian fisheries sector, launching it into an era that Ishak and Chang (1993) identified as the third phase of technological advancement in Malaysian fishery. On the ground, Firth (1975), upon his return to post-independence Malaysia had found "that the fisheries in Malaya have for some years been in a transitional state" (Firth 1975:15). The number of powered fishing boats had increased drastically, reaching almost half of the total registered fishing boats. Also the natural, mainly locally made materials used to make fishing equipments such as cotton yarn soon made way for factory-made imported fibre, its synthetic equivalent that was more durable, required lower maintenance and easily acquired[20].

Another modern addition to the Malaysian fisheries scenario in the 1960s was the introduction of trawl fishery (Mohamed 1987) to target the demersal species that were found to be little exploited at the time, especially in the east coast (Parry 1954). This marked the beginning of the fourth phase in fisheries technological advancement (Ishak and Chang 1993). Pair trawl units operating on on-board engine boats however were already introduced in 1952 in Singaporean waters by Hong Kong fishers who joined up with local fishers there. Within five years after the first trawler[21] began its operation, 1,349 licences had been issued by the Department of Fisheries. The period between 1960 and 1983, the number of fishing units, motorised fishing vessels and fishers increased tremendously while more productive fishing gears were

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[20] These observations were also made by Fraser (1966) while researching a Malay fishing community in Southern Thailand at the time, who saw how these technological changes were affecting the dynamics in fishing groups

[21] The term trawler will be used in reference to fishing operations that use trawl nets.

being used (Ishak and Chang 1993). The rapid expansion of trawl fishery had created grave tensions between the trawlers and traditional fishers which the authorities tried to resolve by creating the Fisheries Regulations 1980 (Jahara 1988).

A fishery in dilemma: increased yield but depleted resources

The introduced technological changes, which were the result of fishers' own initiative contributed towards significant increases in total fish landing (Ishak et al 1992); from 243,000 tonnes in 1963 to 757,974 tonnes in 1981, which was significantly marked by large quantity of demersal fish caught mainly by trawlers operating in coastal zones (Mohamed 1991). At the same time, a new fishing method called *pukat jerut malam* (night purse seine) was also being widely introduced in the east coast of Peninsular Malaysia and soon, this efficient technology spread to the east coast and replaced *pukat takur* as the biggest type of fishery there. This fishing method was first used in the west coast of the Malaysian Peninsula in 1930s using non-powered *Tongkang* (Chinese jong). Operated at night, Ishak and Chang (1993) posit that its introduction had significant impacts on the local fishery. Firstly, it radically altered the local fishing operations that used to be carried out during the day mainly with *pukat takur.* This disrupted normal family routines. Also, its higher yield changed the marketing structure because the local fish dealers were no longer able to absorb the offer. The situation forced boat owners to market their own catch.

The expansion of *pukat jerut malam,* also locally known as *pukat kilat* (lightning net), also caused the decline of other traditional large net operations such as *pukat tarik* and *pukat payang* that could not compete with it in terms of performance. It however has one thing in common with the *pukat takur*: the use

of *unjang* for its operation. Although the *pukat jerut malam* is operated using one boat instead of a few as in the *pukat takur* operations and require less manpower, the net is set to ideally haul in large and compact shoals of pelagic species just like the *pukat takur*. For this reason, the *unjang*, which is used the same way by the *pukat jerut malam* operations as the *pukat takur* operations that it virtually replaced, plays an important role in ensuring a good catch even in the modern fishing method.

However, signs of overfishing were already showing by late 1970s (Pauly and Chua 1988), which the country's first legal framework, the Fisheries Act 1963, was not able to curb despite the provision against inshore fishing by trawl operations created under it. Assessments carried out by the fisheries agencies and researchers all concluded that the inshore waters off the Straits of Melaka were overexploited (Ishak and Chang 1993). The total fish landing in 1978 was marked by an increase in trash fish landings, virtual extinction of certain commercial species and decrease in catch per unit effort (CPUE) (Mohamed 1991; Shahrom 1985). This effect was to an extent reduced when the declaration of the Malaysian Exclusive Economic Zone (EEZ) in 1980 expanded offshore fishing grounds in the east coast and further increased fish landings. But it was widely accepted that the inshore fishery was in crisis. Another concern raised was on how the increase in productivity due to the technological advancement did little to improve the plight of the artisanal fishers and "paradoxically, this has happened in a context of increasing government concern for the plight of the traditional fishers" (Gibbons 1976: 89). Gibbons argued that these technological advancements had in fact created a greater gap between the artisanal small-scale fishery and the modern capital-intensive fishery such as purse seine and trawl operations, in term of economic status and level of technology and skills. Therefore, "the by-product of the

rapid growth in fisheries production was a prevalent dualism in the fishing industry" (Ishak et al 1992:438), with small-scale fisheries using traditional gears on one side, and large trawl and purse seine fisheries with modern gears on the other.

Steps such as mechanisation of small-scale fishers were however being taken by the Government to improve the livelihood of fishers since 1950s. The Aid to Fishing Industry Scheme was launched in 1956 to subsidize the acquisition of better fishing equipment (boats, engines and nets) through a fishers association in the east coast of Malaysian Peninsula[22]. In 1971, the Malaysian Fisheries Development Authority (LKIM) was created to which the responsibility of fishing equipment subsidization was transferred in line with the new agency's task to promote the socio-economic well-being of the fishing community. Through LKIM, further subsidies, loans and grants were given this time to individual fishers throughout 1970s. By 1983, Malaysian fishing industry was considered to be "one of the most heavily subsidised in the world" by a World Bank report on the country's fisheries sector (Ishak and Chang 1993: 47).

Although improvement of fishing fleets in terms of motorisation, boat upgrading, engine acquisition by artisanal and other types of fishers was achieved through such schemes, the report highlighted their failure as well, in terms of massive loss of public fund. They were considered counter-productive as they had "contributed towards and accelerated the deterioration of resources and reduction of income among active fishermen" (Ishak and Chang 1993: 48). More problems rather than benefits were brought to the former due to the deficiencies of fisheries plans to effectively manage and

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[22] Unfortunately, it was a failure as only 2% of the loan was repaid (Ishak and Chang 1993)

provide for them, especially in protecting their fishing grounds in the inshore waters (Shahrom, 1985). For these reasons, the Government's fishery development goal which "is based on maximum social yield that requires a balanced management between the resources and socio-economic conditions of those involved in the sector" (Mohamed 1991:4), and to set up a working group on fisheries development in 1978 under a cabinet committee on agriculture to look into these issues[23]. This led to the introduction of the National Agricultural Policy (NAP) 1984.

Artificial reefs as resource enhancement tool in modern fisheries development

Formulated to "ensure a balanced and sustained rate of growth in the agricultural sector vis à vis the other sectors of the economy" (Mohamed 1991:5), the NAP was tasked to maximise the income from agricultural sectors through the efficient utilization of the resources and the revitalization of its contribution to the overall economic development of the country. Through the implementation of the NAP, the Malaysian government had envisioned that the fishery sector would attain self-sufficiency by 1990 and achieved a surplus for export by the year 2000 (Hotta and Low 1985). In the year following NAP's launch, *The Fishery Sector Strategy and Development Programme till the year 2000* (FSSDP) was published[24]. A budget of RM 1,054,327,000 for the period

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[23] Based on the report submitted by this working group in 1979, the National Action Council created a committee to undertake a comprehensive study on the management and exploitation of living marine resources. A similar committee was also created for the agriculture sector. The findings of from these two sectoral studies were used to develop the NAP

[24] In it the plans and strategies for the development of Malaysian fishery sector for a five-year period between 1986 until 1990 as well as the sector's long term objectives until 2000 were outlined. The 300-page document produced to provide the direction towards achieving NAP's objectives was "a comprehensive and ambitious plan" (Mohamed 1991:6). Emphasis was given on the need to modernize fishing methods and the fishing fleet, and the importance of stepping-up efforts to expand offshore fishing, where higher private sector involvement would also be sought. The highly criticised direct subsidy schemes for fisheries development was

between 1986 and 1990 was allocated under the Fifth Malaysia Plan (RMK5) to implement strategic programmes for inshore fishery, offshore fishery, aquaculture, developmental support as well as social and institutional development.

Through these various programmes, the government hoped to bring modern transformation to the Malaysian fishery sector. The idea was to transform the Malaysian fishery sector into one that is technology-based and supported by better infrastructure. Thus transformed, it would reach optimal level of exploitation of its resources due to the efforts made to ensure a correct balance between the size of the exploit (boat and manpower) and the fisheries resources that are available for exploitation. For the latter, the strategy employed was firstly to reduce the strain on inshore fishery by regulating access on coastal zones while opening new areas for offshore fishery. Henceforth, the type of license that a fishing vessel is given would designate the zone in which it could legally operate (see Table 1). Secondly, measures to rehabilitate and enhance inshore fishery were undertaken and artificial reefs programme which had been initiated in small scale as part of the Department of Fisheries' research activity in 1975 was identified as one of them. These ad-hoc efforts were finally recognised as a fisheries enhancement project (Latun and Abdullah 1990) and henceforth, artificial reefs programmes became a permanent feature in the subsequent agenda phases of the NAP.

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halted in favour of the promotion of offshore fishing. High priority was given to the development of aquaculture in order to augment the domestic supply of fish, fully exploit the export earning potential of the industry and provide additional income-generating rural development. Governmental efforts and resources were also channelled towards the delivery of support to fishing industry in terms of research, resource management, training and development as well as social development.

Table 1 Malaysian marine fishing zones

Category	Designated user* (Malaysians only)	Fishing zone
A	Exclusively traditional Fishers	Less than 5 nautical miles until 30 nautical miles from the coastline
B	Traditional fishers and mid-scale commercial fishers (owner operated trawl and purse seine operations using vessels of not more than 40 gross registered tonnage	From 5 nautical miles until 12 nautical miles from the coastline
C1	Traditional fishers, mid-scale fishers and coastal commercial fisher (trawl, purse seine and other types of operations using vessels of more than 40 gross registered tonnage)	Between 12 and 30 nautical miles from the coastline
C2	Off-shore commercial fishers (trawl, purse seine and other types of operations using vessels of more than 70 gross registered tonnage)	From 30 nautical miles

* Malaysian fishing operations only, except for C2 where foreign joint-venture or charter operations are allowed to enter

The artificial reefs to which the FSSDP refer to are those that were developed by the Department of Fisheries. They are called *tukun tiruan* which literally translates into 'artificial reefs' in English[25]. The choice of using this term signifies two important aspects that distinguish these structures from the earlier discussed *unjang*. On the one hand, it refers to the technical aspect of these devices where they are classified as submerged structures like the reefs that they are artificially created to imitate. On the other hand, it refers to the functional aspect of the devices where they are not created as a fish

[25] The English equivalent of the Malay definition (obtained from the Malay language dictionary by the Dewan Bahasa dan Pustaka) for the word *tukun* is 'reefs' or 'rocks at sea that are not visible from the surface'; and for *tiruan* is 'artificial ' or 'non-original'.

aggregating device. For this particular reason, fishing was prohibited at the *tukun tiruan* sites (Latun and Abdullah 1990; Delmendo 1991). The Department of Fisheries's Fisheries Research Institute established the first two of these artificial reefs sites in the north-western state of Kedah; at Pulau Telur on May 1975 followed by another one later in October that year at Pulau Payar. Another site was created the following year in Pulau Aman, Penang. The initiative soon spread to the east coast with the first site created in Pulau Ekor Tebu, Terengganu in 1979. These initiatives were "carried out on ad-hoc basis on a modest scale and progressed gradually with borrowed facilities and manpower" (Latun and Abdullah 1990:423). Therefore, in the first decade of their introduction, the number of artificial reefs sites grew modestly from two in 1975 to fourteen in 1985 (Latun and Abdullah 1990). However, upon its identification in the FSSDP as part of the programme to rehabilitate the inshore fisheries resources, artificial reefs development in Malaysia entered a new era. As discussed earlier, the NAP aspires to create a fishery sector that optimally uses its resources with the assistance of modern technology.

Under the first phase of NAP (1986-1990) that was implemented under the Fifth Malaysia Plan[26], RM8.24 million had been allocated to create new and enlarge existing artificial reefs sites which are believed to be a modern approach in fisheries resource rehabilitation. Since then, artificial reefs were officially recognised as a fisheries development project under the Ministry of Agriculture (Latun and Abdullah 1990). By 1989, sixty-five tyre artificial reefs sites as well as nine boat artificial reefs sites had been created in Malaysia. The FSSDP however had provided for the new batch to also include concrete

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[26] The Malaysia Plans (RMK) are five-year plans that are developed to ensure that the developmental aims set by the New Economic Policy that was launched in 1970 are achieved. The first Malaysia Plan or RMK1 covered the period between 1970-1975.

structures similar to the ones used in Japan (Shahrom 1985). Therefore, four concrete artificial reefs sites were developed until the end of 1990. Since then, the Department of Fisheries has ventured away from using waste materials such as old tyres and derelict vessels and towards developing artificial reefs using custom-made materials such as concrete and Polyvinyl chloride (PVC) since 1991 (Raja M Nordin et al 1994). This is due to the ineffectiveness of the former types of artificial reefs (Mohd Ali et al, 2008) but also because of the increased budgetary allocation that was made for artificial reefs development in subsequent Malaysia Plans. By the Eighth Malaysia Plan (2006-2010) RM5 million has been allocated to the Department of Fisheries for artificial reefs development in the state of Terengganu alone (DPPSPM 2007). Although tyre artificial reefs are no longer being constructed, boat artificial reefs are however still created by some agencies. As for the custom made artificial reefs, various specially designed types have been created to meet the requirement of specific target species, such as fish or lobster artificial reefs or squid artificial reefs; or specific marine conditions, such as soft or hard bottom artificial reefs; or specific type of fishery, such as artificial reefs for recreational fishing (Ahmad et al 2008).

With the expansion of the Department of Fisheries' artificial reefs programme in 1985, proper organisation had to be made to ensure its smooth implementation, which involved the Conservation Unit of Fisheries Research Institute (FRICU), State Fisheries offices and the Coordination Secretariat (ARCS) that was based at the Department of Fisheries' headquarters. There are three stages involved in the implementation artificial reefs programmes, namely project conceptualisation, construction and deployment and finally post deployment and management; which involved various activities. But the Department of Fisheries has not been the only agency that is implementing

artificial reefs programmes in Malaysia. The Malaysian Fisheries Development Authority (LKIM) with whom the Fisheries Division of the Ministry of Agriculture shares the responsibility in fisheries development programmes and policy in the country, was established in 1971. While the Fisheries Division at the Ministry of Agriculture is responsible in regulation, training, marine research and extension as well as freshwater aquaculture, the LKIM which is also under the same ministry, has been progressively assigned a wide range of socio-economic type of developmental responsibilities including fish marketing, supervision and promotion of fishers' organisations, acquisition and operations of fishing fleets brackish water aquaculture development as well as infrastructure development (Ishak and Chang 1993). This is due to the designated role that it was set to play in increasing the productivity of the fishery sector towards improving the income and quality of life of those involved in the sector, especially coastal fishers (UTM 2005).

Also involved in efforts to increase fisheries resources, LKIM has been developing artificial reefs project since early 1980s. Although similar to the artificial reefs that were developed by the Department of Fisheries in term of structural design and material, their artificial reefs however are called *unjam*, meaning fish aggregating device instead. But unlike the Department of Fisheries' artificial reefs sites which are prohibited fishing areas, fishers are allowed to fish at artificial reefs sites that are developed by LKIM, provided that they use fishing devices that are not damaging to the structures (LKIM 2009). This explains the choice to call these artificial reefs *unjam*, which is the standard term for *unjang* in Malay, to refer on their primary function as alternative fishing grounds and in facilitating fishing operations for coastal fishers as a fish aggregating device. The deployment of the earlier batches of *unjams* was reportedly made possible by the participation of local fishers who

in groups of ten to twenty fishers provided labour and the use of their boats, thus unofficially making them 'owners' of the created sites, in accordance with the unjang practice.

Besides tyre and boat artificial reefs, LKIM has also begun to develop artificial reefs structures from non-waste material such as concrete. Its first concrete artificial reefs were built using the Cylinder design in 1984. In 1987, Cuboid design was introduced and has since, albeit mod/ifications; become the most popular design to date. In recent years, more sophisticated and expensive designs and material have been used for LKIM sponsored artificial reefs, such as the PROTEK artificial reefs as well as those using Korean ceramics (LKIM 2005). The former is reported to cost RM600,000 per site while the creation of three sites of the latter type in Terengganu state, which is the most active artificial reefs site in the country, had cost RM10 million. Not including these expensive Korean ceramic artificial reefs which was financed through the Special Federal Fund[27], LKIM has spent RM48,463,748 since 1983 to 2005 to create 410 artificial reefs sites in Malaysian waters, with the biggest expenditure made in 2004 when 154 new sites created and 18 existing sites expanded (LKIM 2005).

As a result, Malaysia represents one the most active sites in Southeast Asia for artificial reefs programmes. After only two decades since the first artificial reefs were launched in 1975, a nation-wide programme led by fisheries related agencies such as the Department of Fisheries (DoF) and the Fisheries Development Board of Malaysia or *"Lembaga Kemajuan Ikan Malaysia"*

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[27] All minerals in Malaysian territory fall under the Federal Government's jurisdiction. However, a portion of the revenue generated from the mining activities carried out in any state in the Malaysia, known as *Wang Ehsan* will be returned to the state where the mining activity has been carried out in the form of the Special Federal fund or *Dana Khas Persekutuan.*

(LKIM) saw the placement of artificial reefs at 77 sites (Ch'ng & Thomas (1990) cited in Chou 1997). According to a list provided by the LKIM, the agency has deployed 33,857 units of artificial reefs of various types in the Malaysian waters between 1990 and 2004. Approximately RM3.8 million (£760,000) has been spent in 2004 alone to deploy five different types of artificial reefs in ten different states. This amount does not include the cost for 1658 units of imported ceramic modules that were deployed in the state of Terengganu between 2003 and 2005 (LKIM 2006)[28] (see Table 2 for a chonological summary of artificial reefs development in the state). Such programmes have made Terengganu by far the most active site for artificial reefs programmes in Malaysia, which was further reinforced by an announcement by a representative of the State Government of Terengganu that another RM 10 million (£1.5 million) will be spent to deploy artificial reefs in the state's waters where reportedly some 174 artificial reefs sites already exist (New Straits Times 2006).

[28] Based on a list of artificial reefs in Malaysia (as of 2006) obtained from LKIM, the ceramic modules are estimated by the researcher to cost no less than RM 17 million (£3.4 million)

Table 2 Chronological summary of artificial reefs development in Terengganu

Era/ Year	Type of artificial reefs
Until 1970s	Unjang
1970s	Tyre artificial reefs
1980s	Tyre artificial reefs, (sunken) boat artificial reefs
1990s	Custom-made concrete artificial reefs, PVC artificial reefs
2000s	Custom-made concrete artificial reefs (including soft or hard bottom variations), PVC artificial reefs, Species specific artificial reefs (lobster or squid reefs), Ceramic (Korean and local made) artificial reefs, Reef ball artificial reefs, Protek artificial reefs, Anti-trawling artificial reefs

Research questions and objectives

This high investment into artificial reefs raises a number of fundamental issues, notably: are these technologies truly and effectively enhancing fisheries resources and benefiting those for whom they were developed for, i.e small scale fishers in coastal areas in Malaysia?

There exists disagreement on artificial reefs performance not only between those who run and those who study them, but also among artificial

reefs researchers. On the one hand, artificial reefs programmes have been proven to be "a useful management tool for coastal waters, providing protection of the natural environment, increasing biodiversity and biomass of fishes and marine life, providing shelter and nursery area for young fishes and producing food" (Relini et al 2007:214). Of the Algarve artificial reefs in Portugal, a survey carried out over 14 years concluded that biological enhancement did occur and fishing yield increased in areas related to the artificial reefs (Santos and Monteiro 2007). For the Southeast Asian region, Chou (1997) reported that artificial reefs in Brunei and Singapore have been found to attract greater diversity and biomass of food-important fish than natural reefs. This author sees artificial reefs as a solution to the problem of overfishing by producing more habitats, therefore more fish. On the other hand however, he cautions that they should by rule be only considered for "ecosystem enhancement for degraded natural reefs, extend productivity of natural reefs or emulate natural reefs where there is none" (p 50), so that potential adverse effects of artificial reefs on natural reefs would be avoided. Conservation-oriented scientists therefore prefer to be more cautious about artificial reefs deployment. Although effective in "enabling fishers to save time and fuel, reduce fishing effort and locate fish more predictably" (Bohnsack 1989 cited in Waltemath and Schirm 1995:29), their aggregating capacity that increases the rate of fish catchability causes an acceleration of the rate of fisheries stock depletion if not successfully managed (Waltemath and Schirm 1995).

This call for a proper management of artificial reefs is repeated by Pickering and Whitmarsh (1997) in their review on artificial reef designs, where they concluded that while the productivity of artificial reefs could be related to design, "this may be of little value in the absence of a management

strategy aimed at controlling the build-up of harvesting pressure which some reefs may engender (p 39)". Without regulation, artificial reefs potentially cause overfishing by attracting new fishing communities from the surrounding area, which would end up concentrating fishing efforts in a specific location (Balgos 1995). Scientists are also concerned about the way natural ecosystems are affected by artificial reefs. By creating new habitats for fish, artificial reefs cause natural corals to lose their ecological balance due to the loss of species to nearby artificial reefs (Ebbers 2003). Furthermore, although placing artificial reefs away from natural reefs might help conserve the latter, it might not be a practical option. There are pre and post deployment factors that must be considered before deploying artificial reefs where there are no existing natural reefs (non reef area). For example, the non reef area could be simply unsuitable due to biological reasons (McManus' 1995). For these reasons, many marine scientists advocate against artificial reefs deployment and are in favour of establishing marine reserves to improve fishery production (Balgos 1995; Ebber 2003) as well as in implementing alternative livelihood programmes, such as ecotourism to alleviate fishing pressure (McManus 1995; Relini et al 2007) instead. This put them in contention with other researchers who opine that such narrow, conservative, conservation-orientation is preventing scientist from rationally appreciate the overall benefits to the marine ecosystem that artificial reefs contribute (Jensen et al 2000b; Bellamy and Wilkinson 2001).

On the other hand, there is difficulty in assessing artificial reefs and their performance due to the multitude designs, sizes and materials used in artificial reefs development and the variety of uses (Grossman 1997; Pickering and Whitmarsh 1997; Baine 2001). More recently, a considerable concern regarding the way that artificial reefs have been, and are being evaluated has emerged.

While in the past focus has been given to both their environmental impacts and their fishing enhancement potential –artificial reefs are evaluated merely based on data of fish assemblages and catch– the effects that their deployment might have on fishing communities whose lives are directly affected has been overlooked (Jensen et al 2000b; Seaman 2002; Bortone 2006) .

In the first place, some scholars have expressed their concern regarding the lack of research on consequences which fall somewhat outside of the biological and environmental impacts of artificial reefs. One of the earliest calls for social and economic considerations for artificial reefs deployment and management has been made by Ditton (1981) and Graefe (1981). The former argued that the lack of a comprehensive feasibility studies prior to deployment of artificial reefs is partly due to the fact that it is public-sector driven, where programme implementers are agency technocrats who have closer affinity with the natural and physical sciences, and are not accountable in meeting the artificial reefs users' requirements. The latter added that although there was an increase of interest to collect socio-economic data but there was alarmingly little done to identify conflicts that artificial reefs creation may create .

Since then, attempts have been made to increasingly widen the scope of performance evaluations by incorporating economic output into of artificial reefs. Fishery yields from artificial reefs sites are now important data collected in artificial reefs evaluation to complement data on fish assemblages or marine biomass (Bombace et al 2000; Santos and Monteiro 1998). Two recently LKIM commissioned studies in Malaysia were intended to capture the economic returns of artificial reefs (LKIM officer, personal communications on 12 December 2008). In a few cases, fishery catch and demographic statistics, thus referred to as "socio-economic" data, are gathered together. In Portugal,

surveys are conducted to assess stakeholders' perception of artificial reefs benefits (Ramos et al 2007). But, more commonly, artificial reefs evaluations are based on either the biological or economic changes observed after artificial reefs deployment. Jensen et al (2000b), in reviewing artificial reefs programmes in European countries, raise some concerns about this approach by agreeing that although "European artificial reefs have been shown to develop as successful ecosystems over prolonged periods of time, (...) the social and economic impacts on coastal communities are, as yet, undetermined suggesting a future line of inquiry" (Jensen et al 2000b: 490). Indeed, the twenty-five evaluations reported in their publication were only looking at either biological enhancement or fish yield data from the artificial reefs sites.

The lack of scholarship on what lies beyond the biological and economic aspects of artificial reefs was further confirmed in reviews of papers presented at the 7th and 8th CARAH events in 1999 and 2004 respectively. Seaman (2002) summarized that of the oral reports presented at the 7th CARAH, "only 5% deal with assessing or documenting how reefs perform in meeting the objectives defined by user interests" (pS15). Bortone (2006) in his review of the papers presented at the following CARAH event in 2004 opines that "artificial reef research is becoming more sophisticated from a technical perspective, but needs to address the inherent problems in working in a boundless environment that often is impacted human interference". According to him, "fundamental changes in conducting artificial reefs research need to be made to achieve significant advancement and address issues on establishing artificial reefs as a fisheries management alternative and the attraction/production conundrum". Therefore, if an integration of "scientific knowledge of ecosystems with economic and social forces impacting the environment" as

called upon by Seaman (2007:154) was to materialise, a closer examination on the relations between society and artificial reefs must be conducted. The implications of creating an artificial reefs site in a marine environment to the local resource users must be fully considered as such considerations are crucial in meeting the needs of the designated users. The author also highlighted that the knowledge that communities might have on artificial reefs in relation to their local environmental knowledge that could contribute towards a better understanding of artificial reefs performance is left unexplored.

Hence, this research is primarily concerned with exploring this latter concern, namely whether artificial reefs truly benefit the communities for which these were designed for. My key research question is therefore **how artificial reefs, a popular fisheries tool in marine and fisheries resource enhancement, affect the lives of small-scale fishers in Malaysia.**

Towards a better understanding of artificial reefs impacts on livelihoods of resource users

It is the aim of this research to contribute towards improving the current practices in artificial reefs performance assessments. The knowledge that local communities might have on artificial reefs in relation to their local environmental knowledge is therefore explored, as this could contribute towards a better understanding of artificial reefs performance (Seaman 2007). To achieve this, a framework inspired by the livelihoods approach is used. In the next chapter, I describe the approach, the contribution of my research to the evolution and further development of artificial reefs research, and finally, the selected case studies for this research.

The specific focus of the study is the place of artificial reefs in the livelihood strategies of small-scale fishers, which are made in relation to the livelihood resources that are at their disposal. In Chapter III, an introduction to the Setiu small-scale fishery, through which people's livelihood and artificial reefs are linked, is provided. Featuring the different fishing strategies employed by research participants from Rhu Sepuluh and Gong Batu villages, the discussion feeds towards understanding the arguments made in subsequent chapters that highlight important aspects of Setiu fisherfolks' livelihood, which are organized thematically.

Chapter IV presents the Setiu fisherfolks' perception of poverty and wealth, emphasizing the approach's focus on understanding realities of livelihood making based on people's perspective. The various categories explained herein are then used to consider the importance of livelihood assets and their access in making a living in Chapter V and VI. These two chapters examine the livelihood capitals that are most valuable to Setiu fisherfolks, namely human and social capitals and the implications on their relationship with artificial reefs. Finally Chapter VII pulls the threads together to present overall conclusions of the thesis.

Chapter II

Livelihood-based approach to artificial reefs evaluation

It has been argued that the deployment of artificial reefs is justified based on the assumption that they contribute to improving the lives of those who depend on marine resources, evaluations of their effectiveness have tended to exclude impacts upon resource users (Ditton 1981; Graefe 1981; Jensen, Collins and Lockwood 2000; Seaman 2002; Bartone 2006). Having examined the shortcomings of existing analyses of artificial reefs in the previous chapter, I suggest in this chapter, as an alternative, an evaluation which draws upon key elements of the livelihoods framework. Specifically, I suggest that the framework's emphasis on assets and access in livelihood generation provides an opportunity to engage the historical, socio-economic, political and ecological dimensions of artificial reef deployment. Rather than reducing human users to bio-economic indicators, a focus on livelihoods engenders an analysis which begins with the human beneficiaries and the ways that artificial reefs factor into the ways that they make their living and, according to Bebbington (1999), make their lives meaningful.

Having presented the research design, I then proceed, in the following section, to explain the operational side of the research. I begin by presenting the methods used in this research that were selected for their usefulness in capturing the reality of small-scale fishers' livelihoods and their interactions with artificial reefs. I then end this chapter with an introduction to the selected study sites, which reasons for selection are duly explained.

Livelihoods Approach: an introduction

Livelihoods are defined as "to comprise of the assets (natural, physical, human, financial and social capital), the activities and the access to these (mediated by institutions and social relations) that together determine the living gained by the individual or household" (Ellis 2000:10). In another definition proposed by Scoones (1998), a livelihood "comprises the capabilities, assets (including both material and social resources) and activities required for a means of living". Thus defined, 'a livelihood' brings together factors that critically affect the vulnerability and strength of the strategies used for individual's or family's survival (Allison and Ellis 2001). In livelihoods research, household livelihood surveys are conducted to not only identify the assets that each studied household have at their disposal but mainly to see how they are used in order to make a meaningful living. This is most relevant in understanding communities whose livelihood is subject to natural resource cycles and fluctuation such as the fisheries sector (E.H Allison and Ellis 2001).

Although many papers that introduce the livelihoods approach attribute its origin to the influential paper by Chambers and Conway in 1992[29] (Toner 2003; Krantz 2001; Farrington et al 2004), Scoones (2009) traces its genealogy further to pre Second World War era when livelihood analyses that were "integrative, locally embedded, cross sectoral and informed by a deep field engagement and a commitment to action" (p 173), and were already undertaken in Africa. But the author claims that due to the domination of modernization theories during the post war period that prioritized mono-disciplinary approaches, livelihoods perspectives were "pushed to the side" (p

[29] Their seminal paper did much to bring livelihoods perspectives to the fore of developmental studies

173) and was only put in practice by researchers who are attracted to its "simple appeal: look at the real world, and try to understand things from local perspectives" (p 172) such as agro-economists and political ecologists. One such study is Scott's (1985) work on the peasants in Kedah, Malaysia that successfully highlighted peasant paddy farmers' resistance towards the introduction of modern mechanized harvesting technology.

According to Scoones (2009) the approach however became increasingly noticed in the 1990s amidst calls for a more sustainable approach in world development. Studies using livelihoods approach have demonstrated how "rather than by lack of development, particular patterns of agricultural development (economic and technical change that increases productivity) intensify the pressures on livelihoods" (Bernstein 1992: 5). For this reason, it gained popularity, especially after the publication of Chambers and Conways's (1992) earlier mentioned paper, among researchers and agencies that are keen on a grass-root centred approach in understanding issues of environment, poverty and rural development and those who seek to challenge or at the least broaden mainstream developmental views (Bebbington 1999; Ashley 2000; Krantz 2001; Farrington et al 2004). For example, the livelihoods-based study by Bebbington (1999) and his team in the Andes was able to highlight how livelihoods that are deemed non-viable do not necessarily lead to out-migration, especially for communities that are culturally attached to specific regions. Bebbington (1999) also argues that by recognizing that livelihood also consists of elements that give meaning to people's world, livelihood approach "broadens our conception of rural livelihoods in such a way that may help rethink the nature, location and content of interventions so that they are more consonant with the diverse ways in which people make a living and build their

worlds" (p 2021). This particular advantage has been noted in Overseas Development Agency's (ODA) projects Namibia and Kenya, where the approach has been successful in "shifting others [economic or environmental or socio-cultural-oriented development project partners] towards a broader focus" (Ashley 2000:24). Through its emphasis on livelihoods diversification that makes clear the importance of capturing what it means to apply diversified livelihood strategies among rural households and reminds us that there is much more to understanding one's livelihoods than just capturing the outcome; and its acknowledgement that livelihood outcomes include those that are not in monetary form as well, livelihoods approach goes "beyond economic and directs impacts" (Ashley 2000:28).

Drawing from this improved understanding of the complex nature of poverty and resource use, the link between sustainability and livelihood was officially made by the UK Department for International Development (DFID) following the launch of the *1997 UK Government White Paper on International Development* that introduced the Sustainable Livelihoods Approach (SLA)[30]. SLA has now developed as a concept and framework (Ashley 2000, Krantz 2001) as well as a set of 'principles for action' (Toner 2003: 772), and applied in designing and reviewing projects, programmes or sectors (Farrington et al 2004). A Sustainable Livelihoods Framework (SLF) diagram was also introduced in the seminal document (see Figure 5) to graphically capture the various components that constitute a livelihood, namely assets, access, strategies, outcomes and the context in which livelihoods is framed. It

[30] Sustainable livelihoods approach refers to a thinking that takes into account the creation of people's livelihood strategies while facing coping with and recovering from shocks and stress, in considering the sustainability of natural resources (Carney 1998; Toner 2003)

commonly features in documents related to development, either in its original or in modified versions (see FAO, 2010; IFAD 2010).

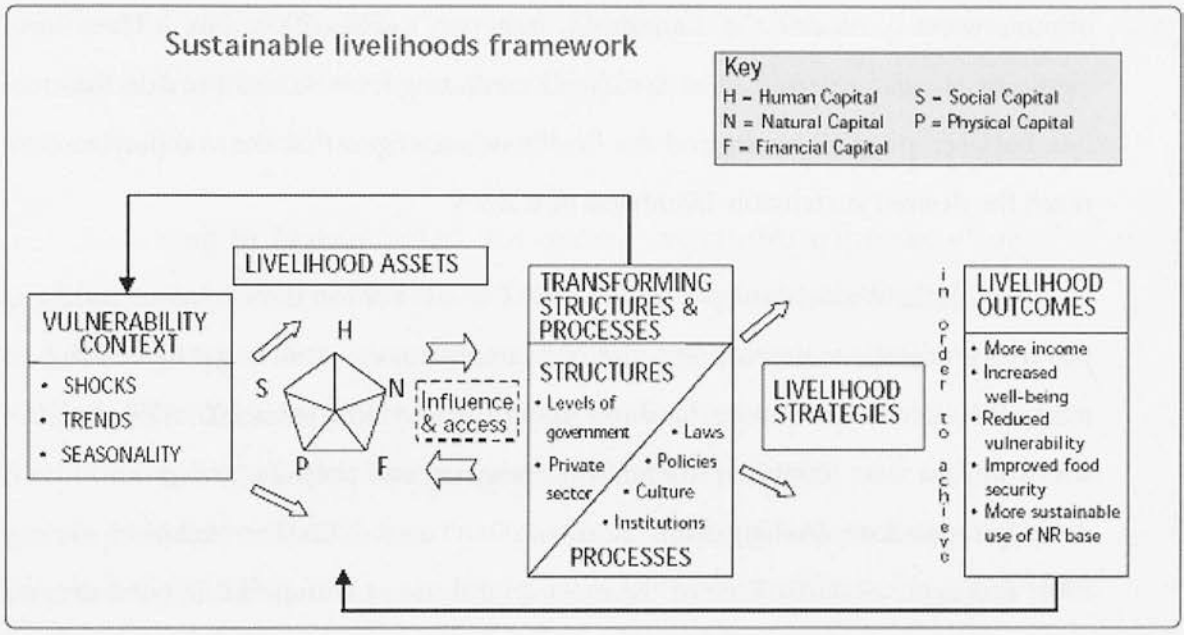

Figure 5 DFID's Sustainable Livelihoods Framework
Source: Figure 1 in DFID (1999) Sustainable Livelihoods Guidance Sheets

Central to the framework are livelihoods assets that are grouped into five categories of capitals, which Ellis (2000) refers to as i) natural capital that consists of "land, water and biological resources that are utilised by people to generate means of survival; ii) physical capital as assets that are created by economic production processes (such as boats); iii) human capital as labour available to the household as well as education, knowledge, skills and health; iv) financial capital in reference to stocks of money to which the household has access; v) social capital as a term that captures the claim that individuals or households can hold community and wider networks by virtue of their belonging to social groups of varying degrees of inclusiveness" (p 32-36) .

These different capitals of which livelihood assets consist are known as "the assets pentagon", which shape helps visualise the variation of people's access to assets, which in turn depends "on the social relations, institutions and organisations of which the households are part" (Ellis 2000: 38). These elements are also referred to as livelihood mediating factors, and provide the link between people's assets and the livelihood strategies that they employ to reach the desired sustainable livelihood outcomes.

With the widespread popularity of SLF in the field of development and poverty eradication, the concept "gained momentum – and large doses of misapplication and misunderstandings along the way" (Scoones 2009:179). Its shortcomings were identified in reviews of research and projects carried out in developing nations (Ashley 2000; Krantz 2001; Toner 2003; Farrington et al 2004; and Scoones 2009). One of the most critical views is that SLF is good at identifying problems, and recommending solutions but not at solving them (Krantz 2001; Toner 2003; Farrington et al 2004). Indeed, SL-based programmes in Pakistan and Zambia were not able to secure support from institutional partners that are necessary to avoid pervasive economic discrimination towards the poor in these countries (Farrington et al 2004). But these authors do acknowledge that the SLF "is intended as an analytical structure for coming to grips with the complexity of livelihoods, understanding influences on poverty and identifying where interventions can be best made" (Farrington et al 2004: 191). To them, the strength of livelihoods as a framework lies in its core concepts: firstly to give focus on people, secondly to be holistic in application, and finally to provide the micro-macro links that are indispensable in resource management. To this, Murray (2001) adds dynamism and the analysis of strengths first rather than needs, which in his opinion has provided the

framework with many advantages. But he identifies its weaknesses too, such as its preoccupation to help the poor that tends to ignore researching the livelihoods of the non-poor, whose trajectories of change are related to the formers'. The author also raises pertinent questions regarding the criteria of 'sustainable livelihoods', which may not be possible to achieve even when positive livelihoods outcomes are realized.

According to Murray (2001), the desired sustainable outcomes often "conflate empirical study of the past and the present with wishful thinking for the future" (p14). In evaluating the use of SLA in two African projects, Toner (2003) came to a similar conclusion, calling for a "look beyond the 'tools", 'checklists', and 'manuals' for managing sustainability" (p780) and seek to resolve problems related factors that govern people's to access to limited resources. Criticism was also voiced by Jones and Carswell (2004) who argue that its focus on the complexity of livelihoods has made it a research tool that is too time-consuming and not easily shared with various project partners. The authors also agree with Toner (2003) that although the issues of power are accessed by the framework, they are found to be insufficient due to its all encompassing breath. This weakness was also identified by Scoones (2009) who argues that the blame is in large part on the prioritization of economic concerns over political dimensions in development efforts.

There are also methodological issues in applying SLF. Bagchi et al (1998) helpfully highlighted the challenges that were faced in capturing livelihoods trajectories in India that were primarily due to a conceptual issue which create a divide between researchers who insist on quantitative methods and those who prefer qualitative ones to capture livelihoods data. Indeed, Kranz (2001) opines that many livelihoods-based developmental projects had "limited use of

quantification" (p23). Other concerns raised by Bagchi and his team (1998) relate to the intrusive nature of household-based research activity that may compromise the reliability of data gathered from respondents in addition to the risk of "information decay" (p460) that may occur while reflecting over a long time dimension.

All these criticisms however do not make the livelihoods approach less suitable for this particular research project. They do instead contribute conceptualizing a workable and realistic livelihoods-based research design in the case of evaluating artificial reefs performance from users' perspectives (see research framework in the following sub-section). This is because indisputably, SLF is a conceptual framework that has been found to be well suited for a research that tries to understand resource use in a broader context, beyond the natural resource or market scenarios such as the one discussed here. Despite the four failings of livelihoods perspectives[31], Scoones (2009) optimistically opined that SLA is still relevant as it is able to offer important insights into complex realities that other perspectives often ignore, while Toner (2003) concludes her review of SLA-based projects in Tanzania by pointing out that SLA makes "an essential link between the minutiae of daily lives and the social economic and institutional macro-context to which people respond and shape" (p 780). The livelihoods approach indeed is the most suited approach to examine the inter-relationships between assets owned by small scale fishers as mediated by the various dimensions of livelihood in understanding their relation with artificial reefs.

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[31] Scoones highlights sustainable livelihoods approach's failures in: i) at coping with big shifts at macro (state, regional or international) level; ii) thoroughly addressing issues of power; iii) making sufficient attempt to provide with long-term environmental solutions; and iv) at grappling with on-going debates on transformation of rural or agrarian societies.

SLF: mind the gap between bio-economics and livelihoods

As explained in Chapter I, this research aims to acquire an understanding of the ways that artificial reefs have impacted the lives of their users. I now discuss the requirement of a broader context to frame these perspectives that also takes into account the local forms of knowledge on artificial reefs. The discussion makes clear the necessity of framing the research using the livelihoods approach- because at the core of the research are the lives of the fishers, which the artificial reefs programmes have been developed to improve, and through this approach, important information on the reality of human-environment relations could be sought.

Towards a broader artificial reefs evaluation practice

Although the underlying interest of the research lies on the performance of artificial reefs, the purposes set for this research are more interested in the fishing communities-artificial reefs relations, much unlike the other artificial reefs performance evaluations found in literature that are much more "bio-economic inclined". This is because the presence of artificial reefs in the Terengganu waters could potentially affect the lives of the fishing communities in many aspects. It could bring economic benefits through increased food production or tourism; change the local politics as new stakeholders, such as the state, scientists and funding agencies enter the scene; create social improvements new as well as crisis such as fight over access rights; and change the ecological set up of the marine ecosystems forever. For these reasons, this enquiry was carried out using a broader context, which resists the temptation of considering environmental phenomena such artificial reefs just as a resource that could be understood and explained in purely technical terms (Zimmerer 1996; Kull 2004).

The quest for a broader user-oriented research context created a challenge while developing the most suitable approach for this research. However, the work of researchers who are interested in community-based fisheries and marine resources management (see Johannes 2000 et al; Firth 1975; Atkinson 1990; St Martin 2001 and 2006), political ecologists such as Zimmerer (1996) and Kull (2004) whose work highlight the embedded power struggles in local natural resource management as well as various work from the developmental field that put focus on people's livelihood struggles (see Bernstein 1992; Sen 1998; Bebbington 1999) become a source of inspiration. Through their work, it became clear that the inquiry into the changes that artificial reefs have affected in the lives of fishing communities must be carried out using a framework that covers their historical, socio-economic, political and ecological dimensions of the relationship between artificial reefs and their users. Together with the emphasis given to local ecological knowledge of fishers, a better understanding of the role and performance of artificial reefs could be achieved.

Firstly, it has been argued that the inquiry into the human as well as ecological aspects of environmental phenomena such as artificial reefs needs to be carried out within its historical context in the realisation that (clumsy) unilinear models could not capture the complex perspectives of long term ecosystem changes (Atkinson 1990; Kull 2004; Peet and Watts 1996). Furthermore, historical accounts could contribute greatly in compensating for the absence of long-term data.

Another component that decidedly could not be ignored is the socio-economic context of the fishing communities in relation to artificial reefs programmes. This is because socio-economic factors do influence the way that

coastal resources are perceived and valued by its coastal communities such as fishers, and this can have significant implications on how the resources are managed (Cinner and Pollnac 2004). On the one hand, social factors need to be considered because although "making decisions about the way we live our lives in relation to the use of the environment is necessary", "these decisions are not individual, but social" (Atkinson 1990:170) . The question to ask is therefore "not whether these decisions that are made are effective in satisfying their material and spiritual needs and avoid ecological destruction. Instead, the question is whether or not they possess a social decision-making structure that allows them to do so" (Atkinson 1990: 171). On the other hand, the economic context of artificial reefs impacts on the fishing communities has to be explored thoroughly and not simply by collecting how much fish have been caught in the artificial reefs area. This is because especially for those who depend directly on resources, environmental and technological changes affect them more as their adaptability to these changes might be hampered by the existing economic constraints that they have. Therefore they might not be able to benefit from programmes that are developed to help improve their economic conditions (Kull 2004, Lestrelin and Giordano 2007; St Martin 2001). As explained earlier by McManus' (1994), a programme that does not take into account how the deployment of artificial reefs that does not take into account the changes it imposes on existing users will cause further hardship to them. Very often, it is due to uneven economic development situation or technological constraints and not the lack of environmental awareness that more ecological friendly practices are not followed (Zimmerer 1996; St Martins 2001).

The dimensions of power were also considered in this evaluation. As mentioned in Chapter I, a substantial amount of state and federal budget is channelled towards artificial reefs deployment programmes.The state may lean towards efforts in artificial reefs programmes because they would favour its economic, social or political agenda, sometimes with little regard on the impacts that they would have on the livelihood of local communities (Kull 2004; Rogers 1998). The implications of creating an artificial reefs site in a marine environment to the local resource users need to therefore be fully considered. They are crucial in meeting the needs of the designated users especially when the state authorities play the most important role in deciding on the "what, where, when, who and how" aspect of artificial reefs deployment programme- often without disclosing the "why".

Another aspect that is currently ignored in artificial reefs evaluation is the potential contribution that local resource users, i.e local fishers can make towards improving the understanding of artificial reefs impacts to the marine environment. Often, the ecological and geographical contexts or conditions of the phenomenon in question determine its course of direction because geographical and biological differences between regions influence the way that resources are used (Kull 2004). In coastal areas, this is further influenced by their geomorphological attributes which determine the kind of resources that are available (Rogers 1998). Here, the local ecological knowledge of fishers becomes invaluable in view of data scarcity that has been discussed earlier. The "folly of dismissing and overlooking it" (Johannes et al 2000:258) could lead fisheries biologists and marine resources managers to err. Like Guha (2003), Johannes argues that this folly is due to the biologists' refusal to take the knowledge of resource users seriously. According to Guha (2003),

mainstream resource authorities have long been reluctant to acknowledge the benefits that the presence and activities of these communities have on the resources due to the persistence of what he terms as the 'authoritarian biologist' ideology. This has delayed formal recognition that local resource users do not only use but also manage natural resources-through various livelihood strategies that they employ based on their perception of status the resources they use as well as those that they possess (Kull 2004; Guha 2003).

Livelihoods approach was found suitable for this 'broader-contexted' research for it is a multi-dimensional framework that is sensitive to the way that resource users perceive resources that are available to them, which they continuously evaluate in order to decide on the strategies to be used in ensuring their livelihoods (Allison and Ellis 2001; de Haan and Zoomers 2005). This is because livelihood approach focuses on the livelihood strategies of people on which the social, economic, cultural and political realities that influence our relationship with the environment are embedded (de Sherbinin et al 2008), while being open to exploring local ecological knowledge of fishers (Allison and Horemans 2006) which has so far been ignored in artificial reefs research. Moreover, the recent work by de Haan and Zoomers (2005) makes us aware that by questioning the access to livelihood opportunities that brings forth the issues of social inclusion-exclusion and the existence of conducive structures (institutions), the approach is well suited to capture the power relations in livelihoods decision making. For this reason, it is found to be a suitable framework to explore the various 'ignored realms' of artificial reefs discussed above.

The application of livelihoods approach in this research also provides an extension to its recent appearance in the area of fisheries research. Although

more widely applied in terrestrial settings, its adoption as the conceptual framework for fisheries research in Africa has allowed for the consideration of both small-scale fishers' livelihood needs and marine ecological concerns, which are indispensable in livelihoods that are subject to natural resource cycles and fluctuation such as the fisheries sector (Allison and Horemans 2006). Recently, Weeratunge and Snyder (2010) argue that the Livelihood Approach impoves our understanding on gender in the fisheries sector. The findings from this ongoing initiative help to improve the understanding of the adaptive strategies of fisherfolk, especially in small-scale type of fisheries not only in marine but also inland fishery (Bene et al 2003). Its adoption in West Africa fisheries policy development has paved the way towards prioritizing livelihoods improvement through capacity building of fisheries dependent communities that is supported by natural resource enhancement measures and appropriate institutional set up (Allison and Horemans 2006). This is because its focus on what these fishers have rather than what they lack provides a better insight into the impacts that development programmes in the fisheries sector have in their lives (Allison and Ellis 2001, Allison and Horemans 2006). In fact, it is argued that without a complete understanding of livelihoods, the management of fisheries using either agency, community or use-rights approaches can result in incompatibilities that defeat the conservation and socio-economic goals that have been set (Allison and Ellis 2001).

Livelihood-based framework for researching artificial reefs performance

In this research, an adaptation of the DFID framework proposed is used (see Figure 6) as the research design to enable this project to put artificial reefs users at centre stage. The application of the framework in this research is opportune to theoretically conceptualize the inquiry in researching the socio-economic,

political and ecological impacts of artificial reefs in the lives of Terengganu small-scale fishers. Also, the use of "asset-access-activities-outcome" analysis in the Livelihoods Approach provides a practical research modus operandi in unfolding the complex reality of small- scale fishers' lives.

As presented in the research diagram below, the four livelihoods components discussed earlier are integrated as the main themes of inquiry. The first component consist of assets, which are made of the five types of livelihoods capitals, namely natural, physical, human, financial and social, form "building blocks that could be defined either as stocks or capitals that households use directly or indirectly to generate the means of survival or to sustain material well-being" (Ellis 2000:31). According to Krantz (2001), "of the various components of a livelihood, the most complex is the portfolio of assets out of which people construct their living, which includes both tangible assets and resources, and intangible assets such as claims and access".

Closely associated to this first component are the elements of access to livelihood resources, such as social relations, institutions and organizations (Component II). Together, the access to and the status of household assets form the basis for the small-scale fishers' perception on their livelihood status. Moreover, it influences their perception of the state of the local fishery, as well as their expectation on the former. This third component then defines their livelihoods activities, which is the fourth research design component. Thus, the addition of this third component to the research design sets the focus on livelihood and artificial reefs, serving as the overriding theme through which the livelihood assets and access as well as the strategies of Setiu fisherfolks are explored. In this research context, they could be either fisheries-based or not

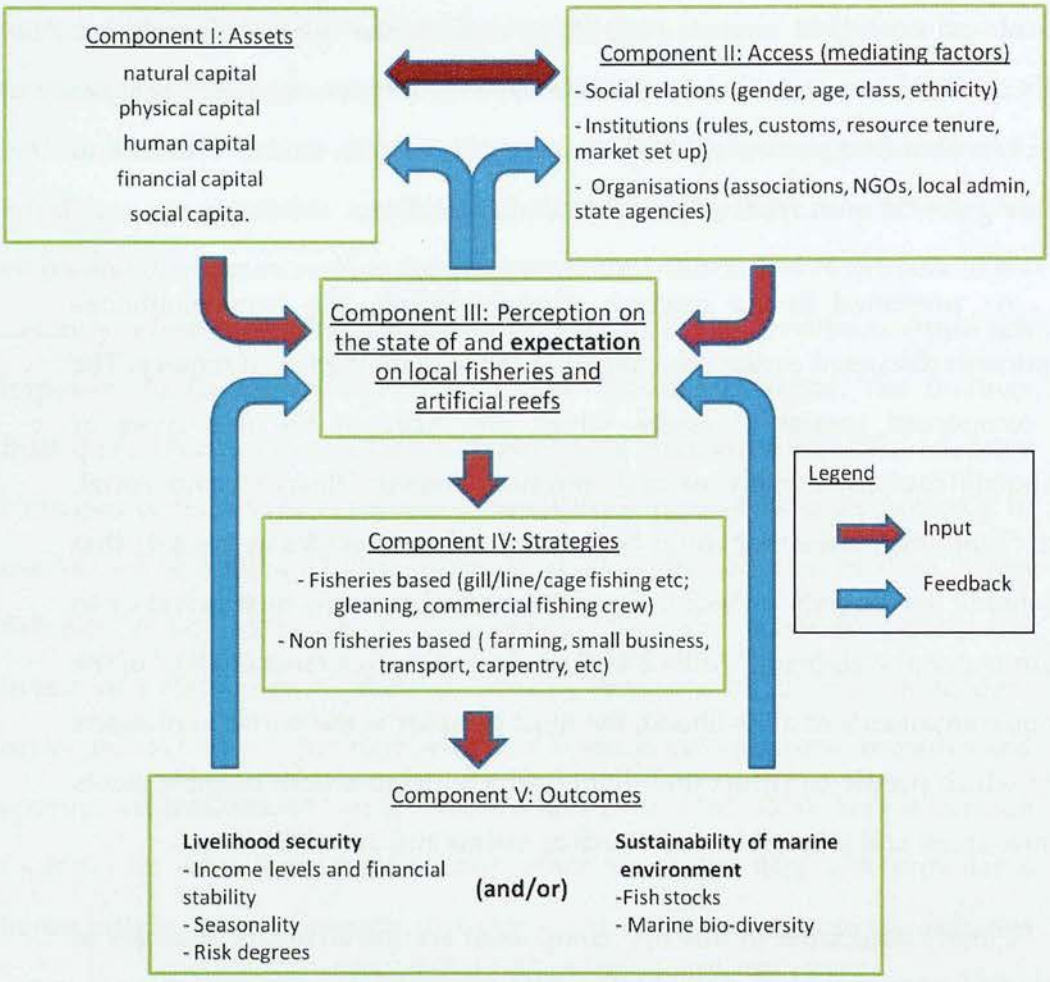

Figure 6. Livelihood-based framework for artificial reefs evaluation

and are targeted towards achieving the desired livelihood outcomes (component five), i.e securing livelihoods income and sustainability of the fisheries resources.

It may be useful to clarify that the framework does not feature a 'contextual component' which those who are familiar with SLF may expect to find. This is because as mentioned, the research is aimed to be broadly encompassing the many possible dimensions of artificial reefs impacts in the lives of Setiu small-scale fishers. Therefore, the specific variables of trends and

shocks such as technological change, relative prices or natural disasters, are not specifically sought after but are kept in view as a list of reference while conducting the research, to avoid from being too preoccupied with them and therefore losing out on other potentially interesting aspect of discovery.

Thus framed, research is able to gather an understanding that "goes beyond the material objectives of life" (de Haan and Zoomers 2005:32). By examining the changes that artificial reefs have affected on the local fisheries sector – though which the elements of livelihoods assets, access and activities come into play – and how these changes affect their livelihood strategies, the livelihood framework allows a more direct and focused approach to exploring the artificial reefs-fisherfolk relations and the impacts of artificial reefs programmes on their lives. The questions that drive the enquiry therefore are:

i) what is fisher-folks' perception of their current livelihood and what are the livelihoods assets that they have available for their livelihood making?

ii) how much do they depend on local fisheries and artificial reefs to meet their livelihood outcome and how and to what extent do they access artificial reefs?;

iii) what is their perception of the current state of local fisheries in relation to artificial reefs programmes? More specifically, what are the changes that they perceive to have occurred in the local fisheries and which of these changes are related to artificial reefs programmes?;

and finally iv) what livelihood strategies do they adopt when all these components have been considered?

Research methods and location

This section explains the methods and approaches used in operationalizing the above discussed research framework. Using the case study method, different qualitative tools, namely interview, participant and field observation, were used in combination to explore small-scale fishers' livelihoods and their relations with artificial reefs as combined methodologies are often useful in livelihoods analyses (Bagchi et al 1998, Murray 2000).

Case study

The case study method, the most commonly used method in livelihood studies (Francis 2000, Ellis 2000) is used for this research. Well suited for a study focused on a contemporary phenomenon (Yin 2003) such as artificial reefs, case studies are one of the most popular methods employed in social sciences; despite the difficulty in defining what specifically they are (Burton 2000). This is because there have been changes in its definition over time and variations between disciplines and researches. But in general, it refers to an approach of studying in detail particular phenomena occurring in a population (Runyan 1982) which is selected because it is believed to "be an instance of some more general category" (Hugh and Sharrock 2007: 224).

Concerns have been raised about the rigorousness of the case study method. The collection and interpretation of data are said to be vulnerable to the user's sloppiness or unethical research conduct, as well as prone to lengthiness (Yin 1994). But the most common criticism launched at this method is its lack of 'generalizability' (Silverman 2005: 126) that is primordial in

quantitative research (Yin 1994; Silverman 2005; Hughes and Sharrock 2007). In response to these concerns, Yin (1994) argues that the first problem is not exclusive to case study method but occur in any other research approach. As for the second concern, he argues that there are now quicker, less cumbersome way to carry out case studies. As for the final concern, one needs to remember that there is little difference between case studies and experiments, that are both "generalizable to theorethical propositions and not to populations or universe" (p 10). This answer is echoed by Silverman (2005) who argues that one of the ways to achieve generalization from cases to populations is theoretical sampling[32], where the samples are chosen based on their relevance to the research questions.

But as argued by Hughes (1980), the research tool or procedure that we use are embedded in particular versions of the world which we are committed to. Indeed, sample representativeness is a constant preoccupation for quantitative-oriented researchers, but not for their qualitative counterparts (Yin 1994; Silverman 2005). Thus, case study is a popular method in human geography because it allows an in-depth and focused understanding of a specific phenomenon. Although Yin (1994) claims that case studies are in general best used in studies where 'how' and 'why' questions are posed, he adds that they are adaptable to a range of research problem (Yin 1994) and are therefore able to accommodate exploratory, descriptive or explanatory types of researches as well. Similarly, Hakim (2000) developed a definition of descriptive, selective and experimental case studies, where the category is defined based on the objective set for the research. In this sense, this case

[32] For more details, see Silverman (2005:130-134)

study on the place of artificial reefs in the lives of small-scale fishers in Terengganu is all three at once. It is descriptive because as I have argued earlier, not much has been studied on the relations between artificial reefs and fisheries resource users and this case study explores this little known domain of artificial reefs. But at the same time, because there are a lot already researched on the bio-economics aspects of artificial reefs' performance, this research focus in fact refines what we already know and therefore represent a selective case study. It is also an experimental case study as it attempts to develop an artificial reefs performance evaluation that is based on the livelihood approach and in consideration of fishers' ecological knowledge.

Research Locations

This research is conducted in Malaysia: its coastal zone is one of the most active sites for artificial reefs deployment programmes in the South East Asian region (Chou 1997, Delmendo 1991). At these sites, such programmes have become a popular agenda for inshore fisheries enhancement since their launch over thirty years ago (Baine and Side 2003). In choosing a research site for the case study, I have decided to take one which represents an extreme scenario, meaning a study site that has among the highest number of artificial reefs sites. For this reason, the case study is set in Setiu, Terengganu (Figure 7). This is because Terengganu is the most active state for artificial reefs deployment programmes in Malaysia, with more than RM38 million (£7.6 million) already spent by the National Fisheries Development Authority (LKIM) alone as of 2006 (LKIM unpublished). With 31 (out of 117) deployment sites, Setiu is the district which has the most number of deployed artificial reefs, of various types, designs, materials and sizes.

Two villages in Setiu were chosen as research case study sites, namely Gong Batu and Rhu Sepuluh (Figure 7). These villages were specifically selected because while the coastal waters off Rhu Sepuluh have the most numbers of artificial reefs in the Setiu, the waters off Gong Batu have the least, thus qualifying as a deviant case[33]. This makes them an interesting comparison. Despite the omnipresence of artificial reefs in Setiu district, they practically did not exist in the waters of Gong Batu when the fieldwork was launched in May 2008 (see artificial reefs site distribution in Setiu in Figure 8).

A deployment in September 2008 however created a new artificial reefs site. It is still in a sense a "no artificial reefs" zone in Setiu, if compared to other areas in Setiu. This however does not mean that artificial reefs are not 'part' of the lives of Gong Batu fishers. Instead, they know of and even reclaim them. Therefore, instead of relocating the study to another location where there are artificial reefs, the enquiry is pursued in Gong Batu as well as in another location in Setiu where the artificial reefs do exist, and at best in abundance. This brought the enquiry to Rhu Sepuluh. The research would therefore explore the place of artificial reefs in the lives of small-scale fishers from two particular locations: one where there are none and where there are a lot. Rhu Sepuluh is the village with the most number of artificial reefs in the district of Setiu.

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[33] Silverman (2005) argues that selecting a deviant case study helps to answer the question of representativeness of case studies as it helps to avoid bias as well as provide an opportunity to test a theory.

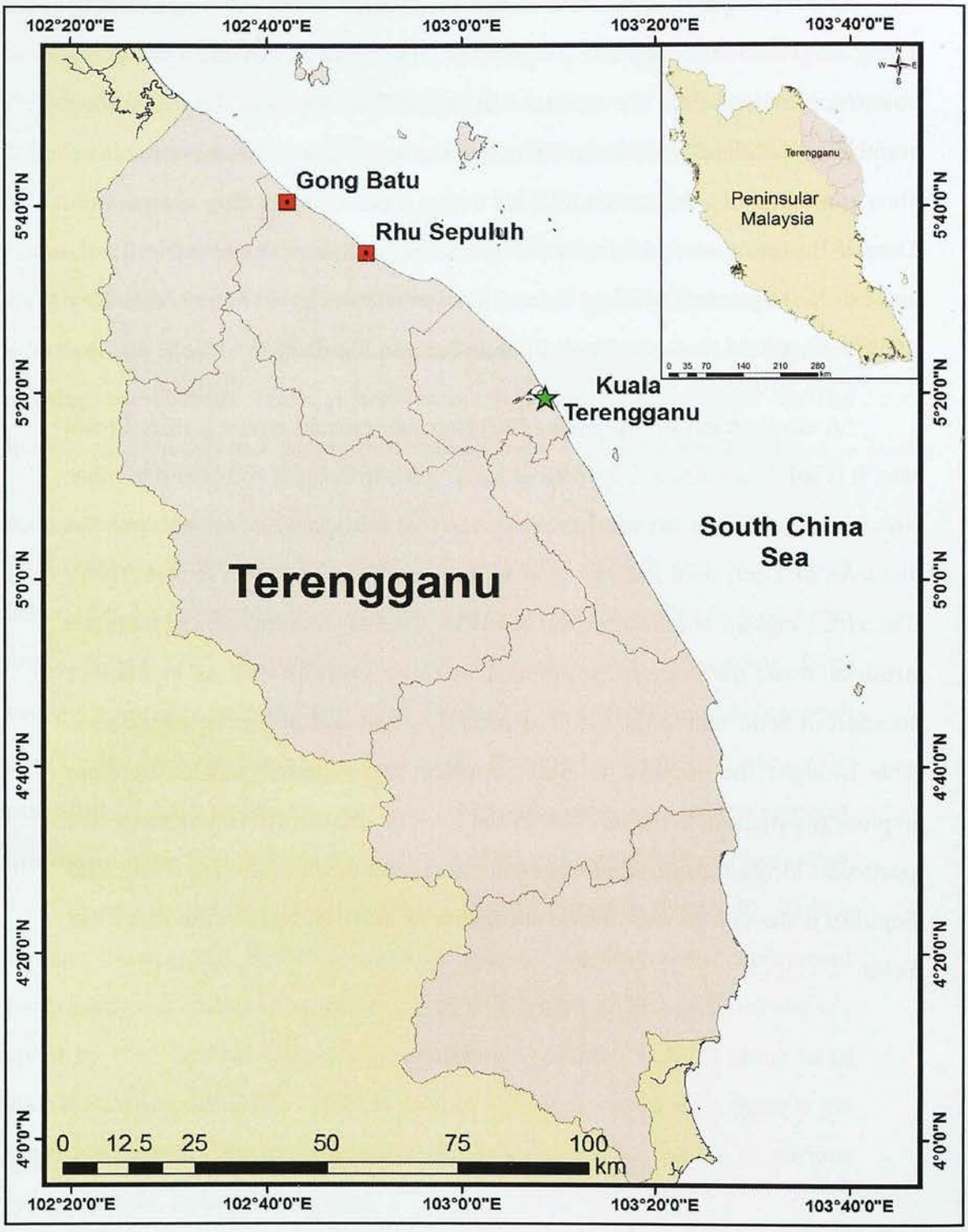

Figure 7. Terengganu state and research locations in Setiu

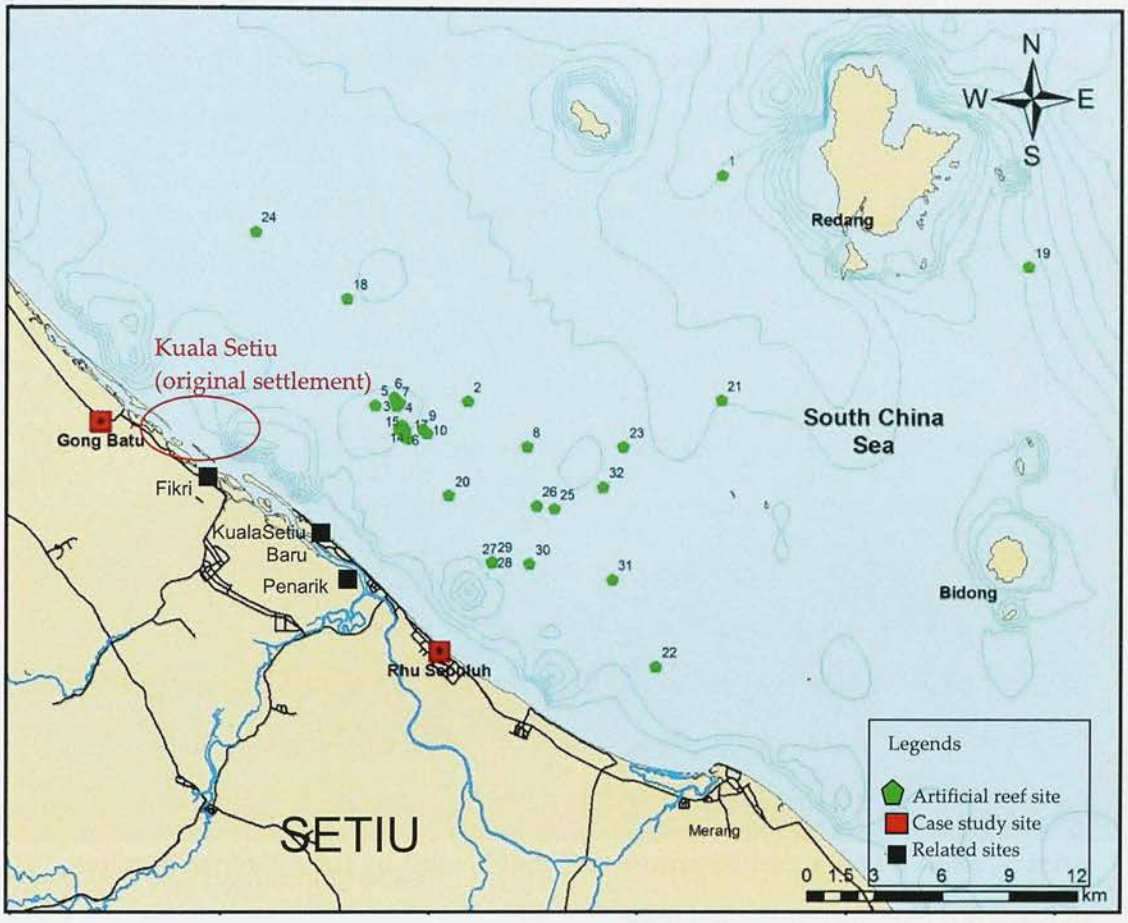

Figure 8. Distribution of artificial reefs sites in Setiu

The villages of Rhu Sepuluh and Gong Batu are at 60 km and 88 km respectively from the Terengganu state capital. These villages are among a number of new villages that were set up not more than 40 years ago as a resettlement scheme for the population of now inexistent Kuala Setiu. Once a thriving hub for fishing activities (Firth 1975, Parry 1954), the area had to be vacated and its population relocated due to erosion-induced land loss in the mid 1950s. Resettled in batches, most of them were given land in a few newly-opened resettlement areas such as Kuala Setiu Baru, meaning New Kuala Setiu

(which unfortunately also saw the same fate as the former) and Saujana. Some families however took refuge in the homes of their relatives in surrounding villages such as Penarik and Fikri that were not affected by the natural disaster.

The village of Gong Batu (5° 41' 0" North, 102° 42' 0" East) was created in 1964 as a new settlement for the villagers of Kuala Setiu who had to be relocated from their beach front homes due to coastal erosion mentioned earlier. Based on a document on the village's profile that was prepared by Gong Batu Village Committee in 2007, 190 out of the 204 families in the village are involved in fisheries; either in capture fisheries or aquaculture or both. The profile also states that 83% of the families in Gong Batu are categorised as poor (earning less than RM530, equivalent to about £80) a month. The fisheries jetty in the village is considered the most important in the area as it is also used by fishers from the neighbouring villages of Beting Lintang, Pengkalan Gelap and Fikri (Figure 9). There are a few public amenities such as a kindergarten, a primary school and a multi-purpose hall that is used by the village committee to carry out various village activities.

Figure 9. Gong Batu fishing base

The second research site is an area generally known as Rhu Sepuluh (5° 34′ 51″ North, 102° 42′ 7″ East), which is a generic name for actually three *kampongs* (villages), namely Rhu Sepuluh, Bukit Chalok and Pandan Jaya which is located in its' vicinity. The main and biggest village is Rhu Sepuluh, which was established only in 1979 as the second resettlement for the villagers of Kampung Payang in Kuala Setiu who had moved to Kuala Setiu Baru when their village had to be abandoned in 1954. Although Bukit Chalok have existed even before Rhu Sepuluh, it is the smallest village of the three. Kampung Pandan Jaya which was only set up in the early 1990's in a special second resettlement scheme for the former residents of Kampung Payang who had not

moved to Rhu Sepuluh twenty years earlier is much bigger in size. According to the report by Rhu Sepuluh's Committee on Village Safety and Welfare in 2007, there are 131 households for the total population of 690. 30% of the population are involved in either fishery or farming. There are however approximately only 30 fishing boats[34], of which only two are on-board engine powered. This usefully indicates that the number of small-scale fishers operating in the area to be in the same range. A small number of households are involved in farming, especially tobacco planting. Located directly off the beach (Figure 10), there is no actual jetty facility as the fishing boats are landed directly on the beach. There are mechanised pulleys provided by the local fisheries authorities at each landing area to help the fishers pull their pull their boats onto the beach but these facilities have all broken down for some years now. There is however a fish selling facility in vicinity to the main boat landing area and just off the main road. Here is where the district's Malaysian Fisheries Development Authority (LKIM) and Fishermen's Association offices are located. There is also a fuel station, which is a very important facility for fishers in their daily operations besides many public amenities such as a kindergarten, a primary and secondary schools in the area.

[34] Based on field survey carried out on the beach throughout the field work

Figure 10. Rhu Sepuluh fishing base

Small scale fishers: reason for selection

The research is based on a population of forty small-scale fishers in the selected case study sites. This is because this group of fishers is supposed to be the main beneficiaries of artificial reefs programmes. The state of Terengganu where the research is conducted is located in the North-Eastern coast of Peninsular Malaysia. With 244 km of coastline, fisheries used to be the major economic activities for the coastal communities in Terengganu until just a few decades ago. According to the State Economic Planning Unit's website, there are only 8,700 people (or 2% of the total labour force) who are involved in fishing in 2006. However, this figure only captures those who are part of a fishing crew that use registered boats. Nonetheless, fisheries continue to

contribute to the state revenue, where 111,286 metric tonnes of fish were landed in 2006. Although the fisheries generated revenue is small if compared to the revenue gained from other state revenue earners such as petro-chemical, timber and tourism industries, it remains an important sector in the state. This is because there are still communities whose livelihood depends on fisheries in a number of coastal areas in Terengganu. They compose the small-scale fishery sector which fishing operatations are carried out using fishing methods that are legally defined as traditional on small vessels (up to 40 Gross Registered Tonnage). For their socio-economic development, artificial reefs programmes have been and continue to be launched.

The selection of small-scale fishers from Gong Batu and Rhu Sepuluh as the case study population is appropriate. Both communities conform to the theoretical propositions of the research, and the similarities and differences that exist between the two locations make them an even more interesting choice, and suitable theoretical tools for analysing the ways that artificial reefs affect the lives of their users. Much could be learned, through a close examination of the ways that these structures socially, economically, culturally, politically and environmentally affect the fishing communities in the chosen location; and the knowledge gained could then, considering the absence of reference on the subject, be used to infer on what we do not know. This is not to claim that this case study is representative of the general artificial reefs-fishers relations. At the most, it may be representative to the Malaysian scenario where the research was carried out, and at the least, these case studies provide an opportunity to understand the types of questions that we have to ask fishers if we are going to make better decisions in the development and maintenance of artificial reefs.

Interviews

The main body of the research data was collected via interviews with research participants from the case study sites. Forty households were selected by identifying small-scale fishers first, meaning those who profess their involvement in the local small-scale fishery. Most of them were personally identified and approached at the villages' fishing bases, although snowball sampling (Francis 2000; Berg 2009) was sometimes used to identify the next potential sample (those who were claimed by other interviewees as fishers as well). Visits were then arranged to these selected households during which life histories interviews (Blaikie 2000, Francis 2000) were conducted usually with the fisher and his wife.

During the visits to participants' household, life histories interviews were conducted with the intention of capturing the household's livelihood trajectory (Bagchi et al 1998). Life histories were captured because they are suitable approach to use when the concern is about the way that the processes of change affect people's lives (Francis 2000) because they "add depth, focus and analytical strength to livelihood research" (Bagchi et al 1998: 466). The time spent on each of these interviews varies between 1.5 to 2.5 hours and are sometimes conducted over a few sessions. These livelihood surveys constitute the main data body that give detailed insights into the micro-level changes experienced in the lives of small-scale fishers. It is worth recalling that the objective of using a livelihood approach in this research is to explore what their livelihoods consist of and then examine whether or not the presence of artificial reefs affects these livelihood assets, access, activities and outcomes; and if so, in what ways. Here, the livelihood strategies especially those that are fisheries-related that they adopt, become the key variable in identifying artificial reefs' place in their lives.

Interview method is popular in livelihoods-based studies (Bernstein 1992; Francis 2000). It is often used in qualitative research because it is the most suitable method to capture people's perspectives of the world they live in (Kvale 2008). Interview method is, according to Yin (1994:84) "the most important sources of case study information". It is however, a method that is prone to data bias due to poor questions or responses; and data inaccuracies due to failure in memory of note-taking and reflexivity (Yin 1994; Kvale 2007). All these concerns were taken into account during the development of the field work design, and specific measures were accordingly taken to avoid them. For example, the interviews were all conducted in an in-depth, semi-structured manner, and were focused on specific themes (livelihoods assets, access and strategies, artificial reefs and the state of local fishery) and are guided by the research questions mentioned earlier (see list of 'guidance' questions and a sample of transcription in appendices A and B). To prevent data loss, the conversations were not only recorded in writing but also in voice recording. Both were then consolidated and transcribed into English for data analysis.

In relation to reflexivity, efforts were made to ensure that the participants would be in a comfortable position during the interview. Firstly, the interviews were only proposed to identified participants once I have gotten to know them better, and was confident of their acceptance of my role as a researcher. This meant that the potential interviewee and I would have at least met and talked a few times and seemed familiar and comfortable with my research activities before I conduct the interview. Furthermore, the interviews were carried out at a venue chosen by the participants, usually their own home. By so doing, they were able to be more at ease during the interview. Indeed, participants would often carry on doing their 'home-based livelihood

activities' such as net-mending or basketry during the interview session (see Figure 11 a) and 11b)). Participants were reassured that the interview session could be ended or postponed at any moment upon their request. Indeed, 3 interviews were conducted over 2 sessions because the first session had to be cut shorter because the participants had to leave or atend to some chore. The interviewees were also promised full confidentiality should they decide not to openly share certain information.

Informal interviews in the form of conversations with individuals or with a group were also carried out whenever an interesting topic related to the research was raised and needed pursuing. To relate changes at micro-level to macro level changes, semi-structured interviews were also conducted with those categorised in the affiliated group such as fellow villagers (6 interviews), fish buyers (3 interviews), local commercial fishers (that operate anchovy or fish purse seine nets in the area- 2 interviews); officers from the artificial reefs or fisheries related agencies at district, state and federal levels (7 interviews) as well as artificial reefs contractors[35] (1 interview). All these interview sessions were carried out in the Malay language, although certain terms in English may occur during interviews, especially those conducted with agency representatives.

[35] This refers to those who are contracted by the relevant fishery agency to carry out any part of the artificial reefs development activity, from constructing artificial reefs to their deployment.

Figure 11.a) Interviewees carrying on with their home-based activities during interviews (mending fishing net)

Figure 11.b) Interviewees carrying on with their "home-based activities" during interviews (weaving baskets)

Field and participant observation

Besides these house-to-house interviews, frequent visits were made to the fish jetty or landing area in both villages, to have a better idea on the fishing operations (fishing routines, fishing equipment and gears, fish yield, fish buyers and equipment suppliers), during which ethnographical methods such as ethnography (Angrosino 2007) and participatant observation (Ying 1994) were used. According to Hughes and Sharrock (2007), this field-based methods enhances the use of interview method because they make "the observer more aware of incongruous or unexplained facts, sensitive to their implications and connections to other facts" (p 221). They proved to not only be useful in helping me gain access to research participants but also in getting the most out of the interviews using the information I gathered while spending time with them outside of the interview[36] (see Figure 12 for examples of my participation in various livelihood activities in the villages).

[36] While this was a small issue in Gong Batu, where the locals had known me through my involvement in a conservation project there; it posed a big challenge for me in Rhu Sepuluh where I knew no one and vice versa. I therefore had to begin 'from scatch' by frequenting the local jetties, and introducing myself to the local fishers and villagers I met there. It was anticipated that because fishery is a predominantly male area in Malaysia, the fact that I am a female researcher may pose a problem in gaining access to the new population. Indeed, it soon appeared that the fishers were politely keeping their distance. However, my 'break' came when I finally managed to go out fishing with one of them, and did not get sea-sick during the trip. This feature of "seaworthiness" opened doors to me, literally.

Figure 12. Participation in various livelihood activities during field work (clockwise from top: pandan weaving; river-gleaning; and fishing)

An evaluation of artificial reefs with a difference

Like in many developing nations, artificial reefs in Malaysia are developed to improve the livelihoods of fishers who depend on the fisheries resources that their creation is to enhance. But despite this seemingly fishers-oriented objective, their performance is evaluated mainly from the biological and economic aspects of fisheries with hardly any attention given to understanding the fishers' livelihoods component. This is because artificial reefs have been developed as part of fisheries management solutions that address issues of poverty and resource degradation through increased fisheries resources that is harvested within the maximum sustainable yield (Allison and Ellis 2001). It does little to understand how such measures truly impact the lives of those that they are meant to improve, namely small scale coastal fishers. For this reason, a contextually broader and artificial reefs user-inclusive research was designed using the Livelihoods Approach as its conceptual framework. This resulted in a research design that is able to explore the socio-economic, political and ecological dimensions of artificial reefs from the perspective of their targeted beneficiaries, namely small-scale fishers by diving into the realm of their livelihoods. This Livelihoods Approach-based artificial reefs evaluation framework was successfully applied in case studies in the villages of Gong Batu and Rhu Sepuluh in Setiu, Terengganu, Malaysia which captured the various places where; instances when; and ways how; artificial reefs impact their lives. In the next chapter, I discuss the fisheries based strategies of Setiu small-scale fishers- the component that provides the first important link between their livelihoods and artificial reefs.

Chapter III

Fishing strategies and the status of Setiu small-scale fishery

Setiu small-scale fishers: an introduction

The purpose of this chapter is to explain the character of fishing in this region. Understanding the context and the perceptions afforded by the locals is an important foundation to make sense of how livelihoods are constructed. I shall begin this chapter by defining the concept of fishers in Malaysia.

In Malaysia, 'fisher' is a highly contested term: the state and even the fishers, have different perspectives of what makes an authentic fisher. The standard Malay terminology for fishers is *nelayan*, though no definition is given in the Malaysian Fisheries Act (1985) except for the word 'fishing'. Article 2 of the act defines fishing as actual or attempted act of catching, taking or killing of fish by any method as well as being engaged in any activity that can result in these acts and those that are in support of or in preparation for the act. It also specifies criteria for traditional and commercial types of fishery.

Small-scale fishers belong to the 'traditional' category due to the type of gear that they use to fish[37]. They sometimes refer to themselves or are referred to as such, along with other appellations. In the North-Eastern region of Peninsular Malaysia, those involved in marine fishery are called *orang ke laut*,

[37] According the definition in Article 2 of the Malaysian Fisheries Act (1985), "traditional fishing appliance" means any fishing appliance enumerated hereunder operated with the use of a non-motorised fishing vessel of not more than forty gross registered tonnage: (a) trap; (b) hook-and-line; (c) drift net or gill net; (d) seine net; (e) hand liftnet; (f) bagnet or stow net; and (g) barrier net

literally meaning people who go to sea. As documented by Firth (1975) during his study on fisherfolks in the region, although the livelihoods of these fisherfolks have long incorporated land-based activities, they nonetheless consider themselves distinct from the *Orang Darat*, meaning the People of the Land, whose livelihood depends on land-based activities. In short, fishing is as much an identity as it is a livelihood.

Setiu fishers involved in this study are found to use the term *nelayan*, to which the adjective *tulen*, meaning authentic, is added to differentiate themselves from those individuals whom they accuse of being only fishers in name but not in deed. What makes a fisher authentic is his commitment to fishing hence authentic fishers are people who are serious about fishing, and would fish whenever they could, even if this would mean going to sea for only a few days a week or only during certain periods of the year. This distinguishes them from those unauthentic ones who may hold a fisherman identity card as well as own a boat and other fishing gears but are not serious about fishing[38]. Thus, authenticity does not require one to be a fulltime fisher who exclusively fishes for a living. Most self-identified *nelayan* are either part time employers in an aquaculture plant, or involved in other livelihood activities such as fish farming, tobacco planting, river gleaning etc instead. Although a full time fisher is of the opinion that some of his colleagues actually no longer qualify as fishers in reference to the membership criteria outlined in the Fishermen Association Act (1971)[39] due to their diversified livelihood

[38] Almost every fisher interviewed claim that there are recently more unauthentic fishers due to the newly introduced (in June 2009) RM200 monthly hardship allowance for registered fishers.

[39] Article 11 (1) of the Fishermen Association Act 1971, to qualify as a member of a Fishermen Association, one must at least be a) involved in capturing, breading or gleaning aquatic organism for at least 120 days a year; b) employed in a fish processing, handling or marketing business; or c) earns at least 60% of his income from the fishing industry

portfolio, all the fishers interviewed consider themselves to be fishers because they still consider fishing an important part of their livelihood making activity.

Most of the fishers in Setiu today are involved in small-scale fishery with individually operated fishing operations. But in pre-modern fishery era, group fishing using *Takur* (lift) or *Payang* nets was the most important type of fishing operation in the East Coast region (Firth 1975; Parry 1954), as it allowed those without a boat, which represented the large majority among fishers, to offer their labour as a crew to these large fishing operations against a relatively consistent income. But today, lift and *Payang* net fishing have become a thing of the past, and local fishers often attribute their demise to the introduction of trawl fishery since 1960s. These large-scale traditional fishing operations reportedly became less viable because they were unable to compete with modern trawl operations that were able to land far more fish per fishing trip. Furthermore, trawling activities rapidly exhausted the local coastal fisheries resources, with those using traditional fishing techniques finding it impossible for their fishing to remain profitable[40].

The decline and eventually demise of traditional group fishing created a labour exodus among local fishers who were working as a crew in such operations towards bigger fishing ports such as Kuala Terengganu, Kemaman and Kuantan, where there were employment opportunities for work with large commercial fishing operations. Indeed, most of the current residents of the

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[40] Such claims are corroborated by fisheries scientists in the region who argue, as discussed in chapter II, that while trawl fishery has increased the volume of fish landing, it has also caused grave damage to the local coastal fisheries resources (Ishak et al 1992; Pauly and Chua 1988; Sainsbury, Campbell and Whitelaw 1992). For this reason, trawling has been denounced by fisheries scientists from all over the world as the main cause for coastal resource depletion (Rellini, Santos, Seaman 2000; Watling and Norse 1998).

region suggest that the local men folk were predominantly working away from Setiu between mid-1970s until early 1990s. A fisher wife recalled how the village used to be void of men for twenty-five days of the month, until they returned *sekelam*, meaning during the full moon period[41]. Around mid-1980s, the lack of capital among small-scale fishers was identified as the key impeding factor in the development of small-scale fishery in the East Coast, and so various boat ownership subsidy schemes were relaunched under the Malaysian government's fisheries technological development programme of the New Economic Plan (Ishak and Chang 1993). Such initiatives have attracted many fishers to return to their villages and operate independently in small boats that are more suited for individual fishing.

The state subsidies appear to have had a significant impact in generating the small-scale fishing industry in this region. This is because they created an opportunity for fishers to operate with their own boat, a fact which most of the research participants declared had enabled them to make a better livelihood at home than as a fishing away crew. They argue that even if they could earn more as a crew member, the amount that they are able to bring home to the family in the end is hardly more than what they would be making by fishing on their own due to the expenses incurred while being away. On this, the wife of a recent 'returnee' gives an insightful account on her husband's progressive return to local fishery, highlighting both the attractiveness of returning to fish and the practical difficulty associated with doing so:

Jarina: So why did your husband stop working away?

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[41] Until recently, large off-shore commercial fishery did not operate during full moon periods which are considered low catch period. This is because the bright moon light reduced the effectiveness of the torches that were used to attract fish. But with the advancement of fish detecting technology such as radar and sonar, fish can still be found during such periods.

Kak T: You mean with the purse seiner in Kuantan? Well, when he started fishing, there weren't many people who went squid jigging in this area as there are now. So, that's why he went to fish at Bara because fishing in this area then was not as good as it is today. (...) he was not aware of the resources that were available in our sea here. He only knew what were in the river because whenever he'd back home, he'd go fishing with his net in the river (...) after part-time fishing in the river, he began to see that there's an abundance of *rezeki* (livelihood resources). So he decided to stay and work here, but [initially] just in the river. Then he heard stories from his friends who go fish for hokey prawns, about their plentiful harvest during the prawn season, which made him want to stay to gain from the livelihood opportunities that are available at [our] sea. (...) So my husband started to see opportunities here and became very motivated to stay and just work here. And after a while, he became very fond of fishing. Now that the squid jigging season is here, he also goes out jigging. And now he sees that fishing for pilchard is good business. But we don't yet have the opportunity to fish for pilchard. That's why he is planning to go back to work in Kuantan not to work there as he did last time, but just to raise enough capital to buy a pilchard net...

(Interview at household 1AKT on 23 May 2009)

Today, different fishing strategies are employed by these authentic fishers to meet their livelihood objectives. This chapter discusses these small-scale fisher's fishing strategies, which consist of fishers' decisions regarding when, what and how to fish. In Firth's (1975:84) study of the fishing community in the East Coast Malaysian region during pre-independent era, he noted that these decisions were made firstly based on "physical factors –

changes in wind and weather and the seasonal run of the various kinds of fish". These factors, which result in two distinct types of fisheries, namely normal season fishery and seasonal fishery, are still applicable in the current fishery scenario. While most fishers are involved in both types of fishery, some are only involved only in one or the other. Fishers also target different species and select their methods of fishing accordingly (Acheson 1981). Their fishing preferences, according to Firth (1975) is influenced by factors of economic, technical and social as well as those of "loosely termed as social" (Firth 1975:90) nature create variations in the methods used by Setiu fishers in carrying out their fishing strategies during both seasons.

I begin by examining the different fishing methods used in the normal and seasonal types of fishery in Setiu and the factors considered in deciding between them in the two following sections, then proceed to discussing other types of fishing operations that impact small-scale fishery in Setiu. Thus framed, the chapter aims to explain the importance of different fishing methods: not just economically, but also, as we will see in the following chapters, for the kinds of networks that are formed and the opportunities that people have for crafting their livelihoods.

Normal season fishery

Normal season fishery in Setiu refers to the fishing activities carried out throughout the majority of the year. While large-scale commercial fishery could be carried out throughout the year, small-scale fishery in this region is only carried out during non-monsoon months, or the period between February and October[42]. In the past, fishing boats used wind-powered sails and could

[42] The rough weather at sea during the monsoon months are due to the strong presence of the North-easterly winds.

therefore not go fishing without prevailing wind conditions[43] and calm sea that occur between March and September. Although small-scale fishers, now reliant on fuel-powered engines, no longer depend on wind power for their fishing operations, their ability to go out to sea still rely upon the ability of their small and light fibre boats to withstand rough sea conditions. For this reason, normal season for small-scale fishery in Setiu excludes the monsoon season between November and January[44], although Setiu fishers are found to go out to fish on exceptionally calm days during the monsoon season for specific species that are exceptionally abundant during this period.

Besides good weather condition, Setiu fishers seem to also take into account the "fuel recovery factor" their decision to go out. In the days of wind-powered sail fishing boats, this factor had less significance than in today's era of motorized-boats. As Firth (1975) had anticipated and Ishak and Chang (1993) have demonstrated, technological change has increased small scale fishers' operation cost. Although small-scale fishers have access to a cheaper fuel thanks to Government's subsidy, their decision to go out fishing largely depends on their perception and expectation on the day's potential catch. Fishers in fact do not go out fishing when they anticipate that they will not be able to secure enough catch to at least recover their fuel cost, as Pok DS explains:

> Pok DS: Yes. I worked as a fisherman, then I started rearing fish and now I operate this coffee shop. But I'm still a coastal fisher, and what I

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[43] See Firth (1975) for more details on fishing boat operations in the region before the introduction of engine powered boats.

[44] This represent a general interval the monsoon season, which duration and intensity of varies annually. In 2007, the monsoon began in October and ended in January while it lasted from November until February in the following year.

> mean by that when there's fish, I will go out. I can't go out every day because some days there would not be enough catch to even cover the fuel cost. So, it's better for me to go out only when there's fish. That's how coastal fishers operate. Not like deep sea fishers who go out every day. Even if they can't recover the fuel cost, it's taken care of (by the boat owners). It's like that for coastal fishers everywhere. When we hear that there's squid, we go out. Or if there's fish, we go out. But we can't go every day, especially because the fuel price went up recently.
> (Interview at household 1APDS on 6 May 2009)

Abstaining from a fishing outing is therefore a risk-aversion strategy for the fishers. Although this strategy seems widely practised in Setiu, fisheries authorities who are in charge of verifying the authenticity of fishers' status[45] may not be aware of it. This, some fishers claim, could lead officers to misinterpret these strategically imposed off-days simply as a non-fishing day. In this case, a fisher who has not gone out to fish for many days due to a 'bad fishing season' may be considered by an officer to be a non-genuine fisher, thus taken off the official registration of fishers. The fisher in question would then lose his access to cheap fuel and monthly allowance, which could be damaging to the most vulnerable households.

Today, the fishers in Setiu usually specialize in one main fishing method during the normal season. In the villages of Gong Batu and Rhu Sepuluh, the forty research participants are involved in one of five types of fishing operations: line, gillnet, *bubu*, crab or *Tamban* fishing. Each fishing method is

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[45] Since the introduction of the fisheries fuel-subsidy in 2006 and the monthly 'hardship' allowance for fishers in 2008, e-Nelayan (fisher identification) cards have been issued to create an online register of fishers. The DoF and LKIM are responsible to make verifications on card holders, to avoid abuse.

described in detail because, as stressed by Ishak and Chang (1993), the impact of each method upon the local fisheries resource base can vary dramatically. Furthermore, as it will be evident in the following chapters, different fishing methods also require different social and economic inputs, and therefore have a substantial influence upon the ways that people construct their livelihoods.

Line fishing

Hook and line fishing (Figure 13), or line fishing as it is generally referred to, is the most popular fishing method in Gong Batu and Rhu Sepuluh, with thirteen and ten fishers respectively focusing on this method. Apart from being one of the few traditional fishing methods that have survived, it has, as explained earlier, also become increasingly important over time. However, in the past line fishing which targets demersal and semi pelagic fish species was not the most popular fishing method as it required the ownership of suitable boats[46] and, in Firth's words, clearly "a hazardous occupation from the point of view of earning a steady income" (Firth 1975: 334) due to the great variations of fish catch.

According to Firth (1975), for those who were line fishers, the attraction for line fishing, besides the low-capital investment factor, lies instead in the greater independence that it gives and the opportunity it provides to exercise personal skills. But because "the second set of factors that govern a fisher's fishing preference is of an economic order (Firth 1975: 88), line fishing was however the most popular fall-back fishing method that fishers resorted to

[46] Smaller boats such as Sekuchi, Sampan and Stok were more suitable for line fishing.

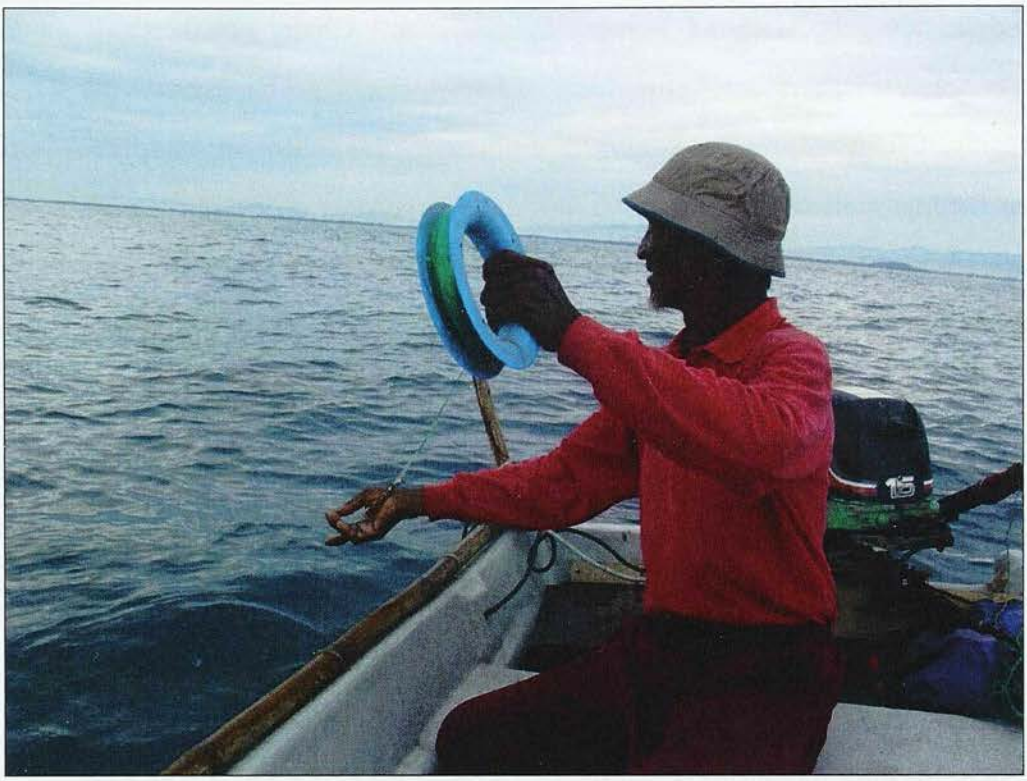

Figure 13. Line fisher at work

whenever these large fishing operations did not yield a good catch. The author observed that intervals of exodus in favour of line fishing caused break ups among lift and *payang* net fishing group organization. They occurred due to two main reasons: first of all, the periods when line fishing ensured very high returns with abundant catches of high value species such as seabream, squid, Spanish mackerel and snapper coincided with the low season period for the large net operations; and secondly, line fishing was not a financially taxing venture as the equipment consisted only of hook(s) and line. No fishing rod is used as the line is handled using hands, which is the reason why Firth termed this fishing method as hand-line fishing. As fishers would most likely be able to make a generous profit during these exceptionally abundant fish periods, it made good economic sense to abandon group net fishing for line fishing at

least until the catch made through this method declined, at which time they would resort to their regular occupation of group net fishing again.

In the contemporary context, line fishing is the most preferred regular fishing method for the very same reasons mentioned above, i.e the low cost of line fishing equipment, which consists only of hooks and a line, and the flexibility that it provides to those who fish with the method. Due to this, it is the method of choice for Gong Batu fishers who divide their time between fishing and fish farming. Technically, line fishing has not changed since the time Firth first recorded it in the late 1930s, and the ease with which a line fisher goes about his fishing may lead one to assume that it is an easy fishing method to apply. But as cautioned by Firth (1975), there is more in line fishing than meets the eye. When asked to explain why they did not line fish, a crab fisher and a *bubu* fisher first claimed that they *dok minat*, literally meaning 'not interested'. But when asked to explain further, they both admitted that they actually are not good at it. There is a certain skill required in line fishing certain species and in choosing the right spot to fish, which can make a large difference in the volume of fish catch (Firth 1975). Furthermore, certain species needs a different treatment, requiring for example specific types of bait. Fresh or life bait of squid or small snappers is needed to fish high value fish such as Spanish mackerel and catfish while the larger carangids will take no other bait than anchovies. Then there are other more subjective reasons, that influence a fisher to go line fishing for a particular species, as Pok L.I who prefers to fish for Spanish mackerel explains:

> Pok L.I: It's like this, you see. It's not really about skills but people would usually know which area has *Tenggiri.* And then it all depends on one's liking, whether he likes to play with *Tenggiri* for example. Like

me, I would rather play with *Tenggiri* than look for the other type of fish like breams. It's more fun for me. Line fishing for bream may be more dependable while fishing for *Tenggiri* has no guarantee. One is much easier to get while the other is uncertain. But I still prefer to fish for *Tenggiri* because it's a lot more fun for me. Like right now, when it's squid jigging time, I don't get a lot of squid, because I don't wait long. If I waited long, I'd get more but my interest is more in fishing for *Tenggiri*. I jig for squid to use as bait for the *Tenggiri* while normally, the moment when we leave is the time when squid start to bite. So we lose out, because we don't wait long enough for the squid and prefer to look for the *Tenggiri*. But there's not many that are crazy like me. I'm in the crazy category actually because it is more the fun that we seek. But you see, when you catch one, it is worth as much 10 kg of squid. So we feel compensated and we get a lot of fun at the same time!

Line fishers in Setiu are found to be fishing either near-shore or further offshore. The former refers to near coast line fishing, which is carried out usually within the five nautical miles from the coast, which signifies the A fishing zone while the latter refers to fishing beyond this zone. Although the costs of fishing further from the sea is significantly higher than fishing nearshore, most of the line fishers in Rhu Sepuluh do so because they claim that the catch from fishing grounds near the offshore islands are better than nearshore.

Jarina: What about (changes to) fish (resources)?

Pok S: Well, there are times when there are fish. Some other times when it's not there. But before, there was so much fish, big and small. Even close to the shore, there were big fish but now there's none. This

> change has happened since the trawl nets were introduced and 'ruled' here. Because of them, everything is gone. If there's anymore big fish here near the shore today, it's those at the artificial reefs.
>
> (Interview at household 2BPS on 18 September 2008)

The above interview represents a typical comment that is made by Setiu fishers when discussing the issue of coastal resource depletion, which would without fail lead to implicating trawl fishery as its main culprit due to the coastal ecosystem damages that it has caused. At this point, artificial reefs, which objective in enhancing the depleted resources is well-understood by the local fishers, would usually enter the discussion. Much related to the question of the sustainability of Setiu small-scale fishery, this coastal resource depletion artificial reefs dimension is discussed later in the chapter.

Pukat Kaya fishing

Pukat Kaya, literally meaning 'rich net' in Setiu refers to the method of fishing with a type of set gillnets[47] that target pelagic and semi-demersal fish (Figure 14). Fishers in the region have been recorded to traditionally use various types of gillnets to fish (Firth 1975, Parry 1954), but this type of set gillnet reportedly originated from Thailand and was introduced in the region only since the 1980s. When asked to explain why it is called so, the most common answer given by the three gillnet fishers in Gong Batu and seven in Rhu Sepuluh is that it is a fishing method only for the 'rich' due to its high operating costs. More fuel is consumed in *Pukat Kaya* fishery because it is normally carried out further offshore, in open sea areas which local fishers term as 'fields' where

[47] Gillnet refers to nets that are designed to capture fish that get entangled when trying to swim through its meshes. According to FAO (2011), a set gillnet consists of a single netting wall kept more or less vertical by a floatline and a weighted groundline. The net is set on the bottom, or at a certain distance above it and kept stationary by anchors or weights on both ends. Gillnets are of special interest for artisanal fisheries because it is a low cost fishery.

shoals of fish are more likely to be found 'playing'. It is also considered a costly operation because at least twenty sets of net, each costing an average of RM100 per set are required per operation and as they are fragile, they can easily tear if caught on hard substrates. Moreover, the twenty set net bundle takes up a lot of space and is a heavy equipment to carry in the boat, especially after use because they will be drenched wet, thus inflicting more fuel consumption. In fact, *Kaya* netting requires at least a seventeen footer boat to operate, due to the net's load and bulkiness, which represents another technical, and subsequently financial constraint that needs to be taken into account if one were to a consider applying this fishing method.

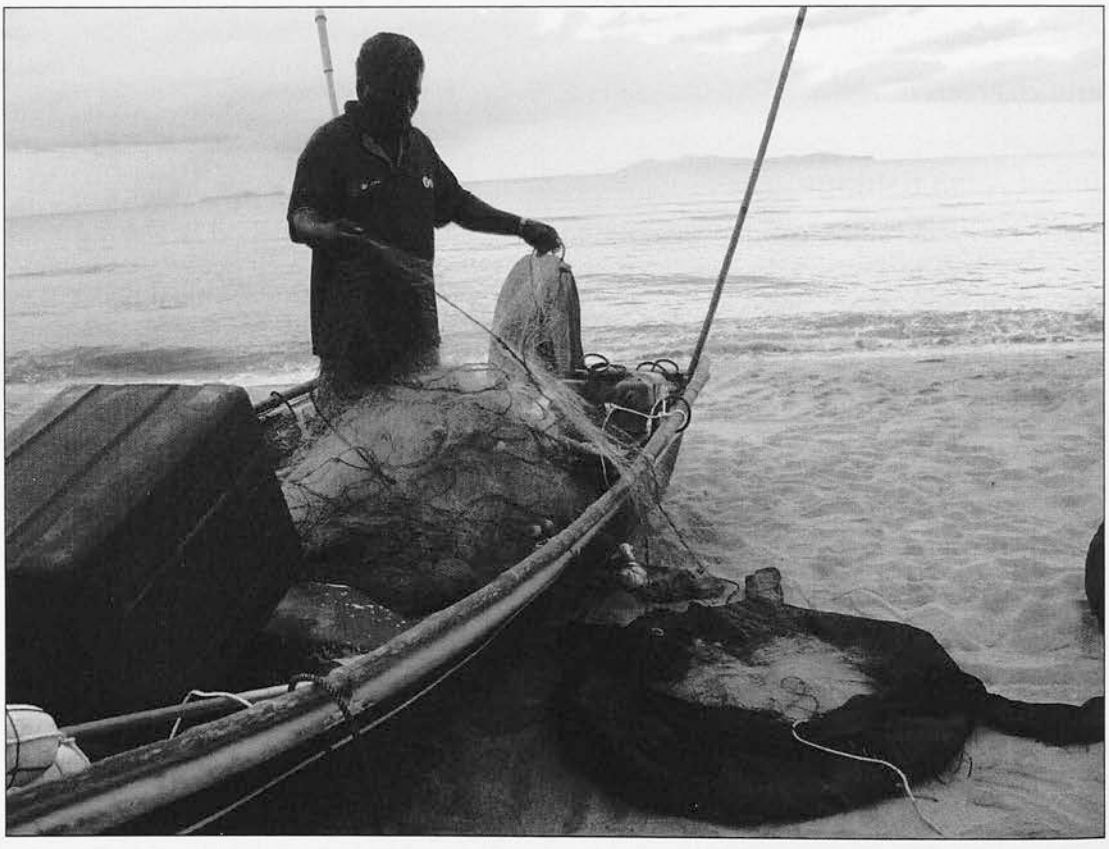

Figure 14. *Pukat Kaya* fisher at Rhu Sepuluh fish base

Gillnet is reportedly the most popular fishing gear in the East Coast small-scale fishery (FOA 2009). However in Setiu, it is not the most popular fishing equipment used. Besides being a costly operation, fishing with *Pukat Kaya* is *kohok,* meaning physically tough, to do. Its operation must follow a tough work regime, which a number of fishers admit to be the reason why they stopped fishing with this method. Gillnetters are the earliest group of fishers to start their day as they have to set out at the break of dawn to reach their fishing locations that are usually further off the coast where the water column is deeper before sunrise. Once they arrive at the desired location, they immediately deploy their net and hope for the fish to 'hit'[48] their net, usually having their packed breakfast while doing so. Then they haul their nets in to see if they've caught anything and may have to repeat this process a few times before the fishing day is over. Due to the length and weight of the net, greater physical effort, and careful handling is called for to avoid damage to the net[49].

Pukat Kaya therefore is a costly, risky and physically challenging fishing method. However, it is acknowledged as a more effective fishing method than line fishing not only by those who use them but also line fishers. Both agree that comparing line fishing to *kaya* netting is like "using one hook against a thousand". Indeed, those who use gillnet claim it is still worth the higher financial investment, risk and effort if compared to line fishing because of the potentially higher financial return, as Pok MO explains during an interview:

Jarina: So you don't line fish?

---

[48] When a net is used for fishing, the Malay word *langgar* is always used to express fish getting caught, while the word *makan,* meaning 'eat' is used when fishing with hook and line or *masuk* when a *bubu* or fish trap is used.

[49] This task could be made easier with a mechanical pulley, which is already used by a few gill fishers from Mangkok where there is a bigger population of fishers that use this fishing method

Pok MO: Not at all. Not for me. I am not interested in hook and line fishing. To me, it seems so hard to make RM100 from that fishing method. With the nets, it seems easy to do so, even if it's hard work. Look at yesterday for example. Although the others didn't make much, I did.

Jarina: So you're saying that income-wise, it's better to fish using the net, and so it's not so much your personal liking to the technique which motivates you choose this method?

Pok MO: Yes. I feel that it's worth more to use the net. With line fishing, to make even RM400 a trip is so difficult. But with net fishing, it feels easy to make that much, if we hit the right spot. With the line, to make RM500, you'd have to catch maybe 10 Spanish mackerels! Just difficult!

(Interview with Pok MO on 31 October 2008)

Because of the high yield potential, FAO considers it to be a low-cost fishery because "it is a gear with low energy consumption calculated on the relationship of fuel or fish". But as alluded to in the interview above, *kaya* netters do sometimes suffer a higher financial loss when they do not make a good catch. For this reason, they are often found to seek and share information on fish catch to decide whether it is worth going out or not the following day.

In Rhu Sepuluh, the decision on an outing is made collectively although each boat is operated by an individual fisher. This is because they are more reliant on each other in their fishing operations due to the "on the beach" set up of their fishing base as explained in the earlier chapter. Here, a *kaya* net fisher who sets out in the early morning hours with a boat loaded with net requires at least another boat to go out with to make it possible to launch and

land his boat. For this reason, the *kaya* net group here seems to be more close-knit. On the contrary, Gong Batu *kaya* netters could decide individually on their outing because their boats are moored at the riverside jetty. However, *kaya* net fishing here is currently only carried out by two elderly fishers who due to their age need to have a fishing partner. In consequence, they gain less income even if there were no market price differences between the two locations than their colleagues in Rhu Sepuluh as they would be able to load less catch into their boat; and due to the additional second fisher in the boat, their catch is further divided between them.

Bubu fishing

This technique has long been used in Malaysian fishery (Parry 1954, Firth 1975). Mainly a complimentary fishing method in the past, *bubu* (meaning fish trap, see Figure 15 of a bubu unit used in Setiu bubu fishing operations) fishing is now operated as a regular fishing method, and carried out in larger scale it is found to be the most effective method in small-scale coastal fishery in Setiu. This is because although only a total of three fishers use *bubu* as their regular fishing method in the case study villages, they are among the most successful fishers. Another two line fishers from Rhu Sepuluh also do carry out *bubu* fishing while they line fish, but they are not categorized as *bubu* fishers because it is not their main fishing operations. They use only up to ten units per season compared to the large scale operations by the other three exclusively fish using up to sixty units of *bubu* during the normal season.

Figure 15. The type of bubu used by small-scale fishers in Setiu

Bubu fishing is a relatively new regular fishing operation for fishers in the two villages who began to use this method after noticing the success that other fishers were having by operating of *bubu* fishery. For Pok MA who is the only *bubu* fisher from Gong Batu, the decision was made eight years ago after discovering the efficiency of *bubu* fishing while transporting fish caught by a group of *bubu* fishers from Fikri[50] for a *Towkay* who was based in the State capital. Earlier in 1996, Pok MJ of Rhu Sepuluh made the same decision after seeing the success that another local fisher, CN was having with his

[50] Located near to Gong Batu, Fikri is one of the few original fishing community settlements in Setiu. Spared from dislocation, the local fishery has remained more or less intact and continuously serve as fishing base for a variety of fishery including *bubu* fishing. A small group of elderly *bubu* fishers were working for a fish *Towkay* in Batu Enam, Kuala Terengganu. Because Pok MA was taking his own catch to the market to be sold directly to the same *Towkay*, the former contracted him to transport the catch made by these bubu fishers as well.

normal large size *bubu*[51]. But he was *bubu* fishing just on part-time basis with not more than ten units per season[52] to supplement his income as a security guard in the state capital and only decided to concentrate on the fishing method after he left this waged employment in 2005. According to him, his success then convinced his friend Pok Mi to also use *bubu* as his regular fishing method:

> Pok MJ: But he didn't believe it at first. He didn't believe that I could make so much by *bubu* fishing. "Impossible!", he said. Because he's a fisherman, you see. He used to work with the gillnet before and said that it was hard to even make RM15,000 a year. But now he knows better. When he first started making *bubu*, he did ten units only. Then he saw that with just ten units, he could earn more than RM100 each haul. So, if we made more *bubu*? That's why I told him... that with *bubu*, the concept (he used this word) is the same as farming. If you plant a single tree, you can't harvest a lot. Just like tobacco planting. If you plant just with RM2000 worth of capital, you won't make much. But if you planted using RM10,000 or RM20,000 worth of cost, then you'll make a lot! It's the same with *bubu*. If you made fifty, sixty units, you can make RM10 at least with each unit per haul. RM10 (per unit haul) is enough already. Don't expect to get RM30 or RM40 per unit. RM10 is enough. So with sixty units, you could make at least RM400 each haul (Note: he has already factored in the no catch possibility). And when you go check them three times a week, that's more than a RM1000 already, right? And (what about) in a month?

---

[51] This other fisher, Che Ngah is considered a mid-scale fisher as he operates using an on-board engine fishing vessel.

[52] At that time he was still working full time as a bank security officer at the state capital.

All three *bubu* fishers interviewed claim to make at least RM30,000 net income a year from their operation. This is hardly surprising when *bubu* fishers return with an average catch of fifty kilogrammes of catch per outing. It is noticeably the most efficient fishing method if compared to the other types of regular fishing in Setiu but not the most difficult to carry out. Unlike the larger traditional types of *bubu* (Parry 1954), the ones used by the small-scale *bubu* fishers in Setiu do not require bait. Also, the operation is low cost because the *bubu* are set near shore. Laid on the seabed and left for a day or two, *bubus* catch demersal species such as snapper, grouper and sweetlips although cuttlefish and crabs are sometimes caught as well in the equipment. All of these different types of catches have high market value, selling from RM 8 to RM14 per kilogramme. Its operation only begins once the monsoon months are well over, or when the water is clear as the local fishers put it, and ends at the first signs of monsoon. This totals to about seven fishing months per calendar year only. But because of the high income one is able to make, the *bubu* fishers can afford to spend the other five months doing other things, although the former almost always means carrying out seasonal type of fishery.

Bubu are usually made by the users themselves using rattan: thin branches from semi-hard wood trees and wire mesh. The ones currently used in Setiu are much smaller in size compared to the more traditional types of *bubu*, which are two times larger. They are made smaller firstly to make it possible to load more units in the small fishing boats, to be located at various spots. Most of the *bubu* fishers learn to make *bubu* by observing the way that experienced *bubu* fishers make theirs. Pok MA learns the technique from a group of Fikri fishers that he is able to befriend while servicing as their

transport agent[53]. As for Pok MJ, he acquires the technique of *bubu* making not only from CN but also seeks the knowledge of *bubu* fishers from other places where it is being made, travelling as far as to Kuala Pahang in the neighbouring state for the best *bubu* design. Pok Mi who learned from Pok MJ agrees that making a *bubu* that works is not easy, and confesses to have committed many design errors before arriving to the one that he is using presently[54]. All three explain that the *bubu*'s frame does not matter much and it can be in any size. But the design of the *unjap* or gait is key as it is the part that will differentiate between a good a bad *bubu.* Fish can enter well-designed *unjap* easily but it will not be able to exit while a badly-designed *bubu* will either not be accessible at all or allow both easy access and exit.

Bubu fishers are among the most specific when describing a good fishing location or techniques. Unlike the other type of fishers who usually explain that their choice of fishing location are based on shared information, past experience or simply their gut feeling, *bubu* fishers refer to observations of physical characteristics such as sea current, water clarity, sea bottom type and distance to artificial reefs sites. This attention to detail is important for them because in addition to the *unjap* design, another important factor in ensuring a successful bubu fishing operations is knowing exactly where and how to place the *bubu.* The way that they position and locate their traps depends largely on their understanding of the behavior of the species that they are hoping to catch most, whether its crab or fish such as snapper, grouper or sweetlips:

Jarina: How do you choose the sites to deploy your *bubu*?

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[53] As mentioned in an earlier chapter, *bubu* making technique is considered a knowledge that is only sparingly shared.

[54] Pok

Pok Mi: The first thing to consider is the current. It is always in the east-westerly direction, never seaward. So when we deploy the *bubu*, we must put them on the fish path. When the tide is low, which is easterly current, fish won't be on the seabed, but will be in the surface instead. When the tide is high, they go to the bottom. So we must put the *bubu* to face the current, at the location where move at the bottom, depending on the current.

Jarina: What about the type of seafloor. Can they be laid at any type of seafloor?

Pok Mi: Can. But in these area, red snappers like muddy bottom. But we can never really know. Even at places where there's no fish, I still deploy them. And if there's really no fish, we move them to another site. Because we just need to try, as there may be fish after all.

(Interview at household 2CPMi on 17 September 2008)

As alluded to in the end of the interview excerpt above, there is no way of knowing for sure whether the *bubu* will make a catch despite all that one may know on fish behavior and local environmental conditions. In the end, one must be willing to go through trials and errors, and be willing to relocate when a site proves to be unsuitable. If a *bubu* fisher follows all these general 'rules', he will not be disappointed, provided of course that nothing unforthcoming happens, which could be damages to the *bubu* or loss of catch and *bubu* units due to theft. Pok MA and Pok MJ both claim that their income for the year is badly affected because they lost a significant number of *bubus* due to theft or sabotages. In addition, Pok MA also lost a few of units due to damages caused by trawlers.

To counter the first problem, the only thing that *bubu* fishers can do is to be as present as possible at their *bubu* locations. Thieves and saboteurs are believed to only do their deed when they are sure that the *bubu* owner is not around because although the owner can do no more than reprimand a thief even when he is caught red-handed in the act, the culprit would prefer to avoid this humiliation, which is already considered a punishment. Therefore, frequent checks and relocation of *bubu* by the owner will significantly reduce the chances of loss. This is the reason why Pok Mi has lost very few *bubu* compared to other fishers: he is known to check each and every *bubu* of his every day except on Fridays or when the weather is exceptionally bad.

The success of this large and small-scale type of *bubu* fishing is well acknowledged by all fishers, including those who are not using *bubu* at all. However, not many are thinking of venturing into *bubu* fishing. One popular deterrent given is the financial cost of *bubu* making. If the fisher makes his own *bubu*, which is the case for all three fishers here, the material cost is about RM2000 for fifty to sixty units of *bubu*. If he buys them, it would be RM500 more. This makes it a high investment fishing option by local standard, especially when the units last for one just fishing season.

Crab fishing

Technically, crab net is very similar to drift nets and is set up using submerged poles at each end at prospective locations and left to capture the targeted species for a day or two. Its operation has low fuel consumption as the net is set up close to the shore. Crab fishing is however not a very popular fishing method in both case study villages. Only one fisher, Pok J from Rhu Sepuluh uses it as his regular fishing method since he started just a few years ago after

seeing how well the crab fishers in Mangkok village nearby were doing income-wise with this gear.

Although three other interviewed fishers do own this gear, they claim to only use it once in a while or not at all. Pok J suggests that the others who are either line fishers or gillnetter do not like using it because they could not be bothered to set up the nets. Furthermore, the net has a very high wear and tear rate: the net gets torn by the crabs that use their claws to free themselves when captured, which usually makes it irreparable. New sets of net needs to be acquired to replace them, which results in a rather high capital cost per season. But because the price of crab per kilogramme fetches a higher price, comparable to expensive fish types, the returns in income are very good even if the amount of catch per unit effort (CPUE) is lower. This and a few other reasons make it a good fishing option, according to Pok J:

> Jarina: Your income from crab netting, is it good?
>
> Pok J: Crab netting gives quite good income... if you need to spend money on things... you're not in difficulty. If you do crab netting, (life's) not hard.
>
> Jarina: You mean it gives good return and consumes small amount of fuel, right?
>
> Pok J: Yes. RM10 for two days. Because I fish just close by. If it's more than that, it would be because I go fishing elsewhere, to look for fish for home consumption. Fish do get entangled in the nets too. When that happens, I wouldn't go fish further. That's why sometimes I come back very early. As early as ten or eleven o'clock. (...) If I came back late, it must be because I've gone further out to look for bait or fish to bring home. Otherwise, I'd surely be back by eleven. People would say "Oh,

> you return so early!" but that (short period at sea) is already enough to get me RM200 to RM300.
>
> (Interview at household 2DPJ on 7 November 2008)

To Pok J who also works part-time at the local fish plant, crab fishing is the best option because he is able to secure a good income despite fishing near shore and for only a few hours each time, which also allows him to spend more time at home with his two young children[55]. Furthermore he has the ability to make further savings by self-procuring fish for home consumption with the by-catch[56] from his crab net or by line fishing on the side while at sea. This helps the household in its financial effort to save money to build a house of its own[57].

Tamban fishing

Although Parry (1954) had recorded *Tamban*[58] netting as the only species-specific net used in East Coast fishery during his survey of the sector in 1951, this fishery method has been little used by local fishers in the past. However, it has seen a revival recently in a few fishing villages in Setiu especially with the growing demand from the thriving local *keropok lekor*[59] industry as well as fish-farmers in Setiu: *Tamban* is sought after by farm fishers as an alternative to the fish feed pallets. At RM25 a barrel, the fresh Tamban cost much less compared

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[55] Pok J is a social demographic exception in the community because when he married his wife, he was already well in his thirties while people usually begin their own family in their early twenties. Now in his early forties, he has a son and daughter at four and six years old respectively.

[56] Crab nets also capture fish that get entangled on it. However, unlike the crabs, they die not long after their capture and must therefore be removed soon to avoid damage to the net which will be exposed to tearing by bigger predators that are attracted by the fish carcass.

[57] Of the forty households surveyed, there are three that did not live in their own property. Of the three, Pok J's household is the only household that lives in a rented property while the other two were living in homes 'annexed' to their parents'.

[58] A type of sardine

[59] Made mainly of fish with a bit of flour, salt and seasoning, it is by far the most popular snack in the East Coast, especially in Terengganu. Although other fish could also be used to make it, Tamban is by far the best fish option.

to RM90 for a bag of fish feed pallets. It is also believed to be a better fish feed as fish that are fed with minced fresh *Tamban* are said to be faster growing.

Gong Batu, where there are reportedly seven boats using the method is one of the villages where this fishing is carried out as a regular operation (see Tamban fishers with their catch at Gong Batu jetty in Figure 16). Securing feed for their aquaculture business is the incentive for some of them to get involved in these fishing operations, and they only sell their catch if there is more than enough for their fish. But the most successful among the *Tamban* fishers, Pok A.T, who was also one of the first to use this fishing method in the village, claims that his venture into this type of fishing was accidental[60]. He now owns the biggest *Tamban* operation in the village, employing local fishers as his *awaks*[61] who use his net to fish on their own boats or fully employed by him to fish using his net on boats that he also owns.

With an average weekly income of RM1000 for Pok AT and up to RM600 for his crew (depending on their material contribution to the operation), it is considered a very lucrative venture. For this reason, few fishers have shared their plan to go *Tamban* fishing in the coming season with me. But instead of being worried about an increased number of *Tamban* fishing operations, Pok AT explained that it would be better for the local *Tamban* fishery:

Jarina: Are there more people planning to start fishing for *Tamban* too?

Pok AT: I hear that there are a few who have bought nets already.

---

[60] He claims that he had gone fishing with the *Tamban* net because the one who commissioned him to make it never returned to take it.

[61] This generally refers to people who work for others

Figure 16. Tamban fishers at Gong Batu fishing base

Jarina: Will that affect your operations?

Pok AT: No. It will be better if it encourages the *Towkays* to buy the fish.

Jarina: Will it create competition to get the fish?

Pok AT: Not at all. You can look for it everywhere. There in Dendong, there is plenty of fish and no one goes there. Many of the Beting Lintang folks have stopped fishing for it and have sold their net. They used to fish just to feed their fish. But it would not be worthwhile to fish just for fish feed. So it's not a problem if there are a few more boats joining in. And the *Tamban* behaviour is as such that once one boat has caught them in its net, others need not move from there. That's their behaviour. Once we've got some in the net, others will come to surface as well, and the sea would be as if full of nothing but of *Tamban*. Just

recently, there was so much *Tamban* until we did not feel like fishing anymore. We ended up just staring at them.

(Interview at household 1EPAT on 29 May 2009)

Tamban fishers also set up special types of *unjangs* that help attract and aggregate the free-swimming *Tamban* fish shoal. This renders their operation easier. Furthermore, although not cheap, with a material cost of RM650 when finished, the net that is used to fish *Tamban* is made of synthetic yarn. It is therefore very hardy and could last for a few fishing seasons. The operation can be operated alone or in twos, and the catch which is scouted by looking for the shoal's reflection at water surface as they swim past needs to be disentangled immediately after being caught in the net so that it could be used repeatedly. Usually, only the catch of the last net deployment will be disentangled at the fish base (see Figure 14: photo of Tamban fisher disentangling their catch at Gong Batu fish base).

Seasonal fishery

Seasonal fishery refers to fishing for a specific type of fishery resource that only occur in abundance during a certain period of time *in lieu of* regular fishing. It is an opportunistic type of fishery that attracts not only fishers who normally use the regular types of fishing methods during the normal season but also those who do not profess to be fishers. Parry (1954) had noted the Malay fishers' ingenuity in adopting their fishing methods to exploit seasonal fishing resources. Also admirable is their ability to fit, if not juggle, their seasonal fishing activities into their diverse livelihood activities:

Pok D: After the hokey prawn season, I go jigging for squid. But when I go jigging for squid, I don't come back home after I finish jigging at

night. I would go line fish first and return only around twelve or one pm. Then I'd not go out that night because I have to work at the fish plant. So I would jig one full evening and line fish for a day. I would normally line fish at another spot but not too far from where I was jigging. The fibre box could fit 200 kg worth of catch, so even if I get 100 kg of squid, I can still pile in fish that I catch from line fishing. Once, I only got 5 kg of squid but made more than RM300 from fish. There's a lot of fish that time too. I usually go to Lima Island, which is not too far from Tengkorak Island where I jig for squid, about twenty minutes apart only. The artificial reef is definitely good for bubu fishing and it's also good for fishing *Merah Tanda* (Spotted Snapper) at night. You could sometimes catch up to 20 kg a night sometimes, and 10 kg of snapper. I always line fish at night for them every year, from June until the end of calm sea period. I come back from work and would go straight to fish, with him (pointing to his cousin Pok LN). We only go during the calm sea period. We would look at the trees to know whether the weather's calm or not. If the trees were leaning, we would go but if they seem straight there in the North West, we would not go. (Interview at household 2APD on 18 November 2008)

There are also a number of fishers who only participate in seasonal fishery. This is the case for a number of fishers in Gong Batu who are involved in fish farming and only go fishing during the prawn and squid season. They are still regarded as fishers because they still consider fishing as their main occupation. It is also important to mention that although certain fish species such as the snapper are more abundant during certain periods of the year, they are not discussed as a seasonal resource because they do not have an 'enduring' seasonal impact that results in a significantly active species-specific

type of fishery. In this sub-section, these various types of seasonal fishing operations that Setiu fishers are involved in are discussed.

Prawn fishing

Fishery in the East Coast is much reduced during the monsoon season, during which regular fishery is not possible due to the rough weather. However, it does not mean that there is no fishing activity at all. During the fieldwork in Setiu, it was discovered that it is during the monsoon season that a fisher would make his highest catch per unit effort (CPUE) income through prawn fishing. In Setiu, it is one of the highlights of the local fishery but remains little known outside the fishing district, although it was mentioned by Parry in his 1952 *Fishing methods of Kelantan and Terengganu* article in conjunction with his discussion of the *Pukat Udang* or prawn net, which is used to catch the commercially sought after *udang Hokey* (see Figure 17 of a specimen of this prawn) or King prawns that occur en masse annually along the North-Eastern coast during the monsoon season, which is believed to be their breeding season.

> Jarina: So the prawn season is actually their breeding season?
>
> Pok SM: Yes. When the water is calm, they are nowhere to be seen. Don't know where they are then. But as soon as the big waves come, they're there. Whether they're in the ground or whatever, no one knows. Just as soon as the big waves come, they're here. When we go out at the first moment of calm, we'd definitely get some. That's how quickly they appear!
>
> (Interview at household 2BPSM on 30 October 2008)

This claim, corroborated by various literatures on prawn life cycle, suggests that mass seasonal appearance of prawn corresponds to their spawning season, which is scientifically reported to coincide with heavy rainfall (Loneragan et al 2005) and fishers in the region have long been involved in this fishery. Even during the time when they are still fishing away in commercial fishing operations, the fishers claim that they still return to fish for prawn during the monsoon season, which coincides with their annual break from commercial fishery. This tradition lives on until today and a number of the research participants are found to partner up with a family member who returns from after being away for commercial fishery. In a few instances, the prawn fishing partner is not even a fisher, but hold non-fishery related jobs such as an army officer. Although it is possible to work alone, most fishers prefer to work with a partner because it makes the chore, which is rendered difficult by the rough weather conditions and fishing rivalry, much more efficient as the work of setting out and hauling in the net could be done faster. This increases the frequency of the net being set out, which in turn increases the net's potential harvest volume per outing. Furthermore, the prawn fishing partner usually contributes towards the acquisition or maintenance of the operating equipment, such as the actual purchase of prawn net or repair and upgrading of engines or fishing boats.

Although prawn fishing is mainly carried out towards the end of monsoon as reported by Parry (1954), a few fishers claim to go out as early as November, when the season has just begun, on exceptionally calm days after

Figure 17 An udang Hokey specimen (probably a Tiger prawn species, it's full length is twice the ruler's 15.5 cm)

a series of 'big waves' that usually bring the prawns closer to the coast[62]. But this is an exception because most fishers would still prefer to wait after the rough monsoon weather has calmed down before venturing out to fish for prawns. This creates stiff competition with every seaworthy boat out at sea, trying to catch as many prawns as possible before the season ends. Many fishers consider this as the shrewdest times for them, where genuine information sharing is rare:

> Pok J: Just lies! Same when we tell our *towkay* when we go prawn netting. When asked if they had any catch, they say, "oh just a few". They never tell the truth! And there are those who would say that they

[62] I was unable to document the prawn fishing operation in person although my fieldwork in 2008 was carried out until mid December. This was because 'calm' days as described here were very few, and I was unfortunately away during the days when fishers were able to go out.

> caught fifty, sixty and even eighty kilo, those who like to talk a lot... They talk as if it's all true but people know them and know they're just exaggerating. Some would say they only have a little when they've already caught a lot. Plain lying! (...) ... when you go netting for prawns, you'd like to know whether they've caught any further out or closer to the shore. And they'd say, "not at all, not at all". That's when we feel a bit angry. But me, I'd tell them straight. Why worry because they are things in the sea. Even if they lay their nets out, they may not get it. It has happened to me when people pretend to leave an area so that we would not fish there and once we leave they would lay their nets out again.
>
> (Interview at household 2DPJ on 21 October 2008)

Fishers are said to be rather shrewd when they go prawn fishing because the prawns fetch a very high price, at around RM35 per kilogramme for those caught using one's own net and about RM10 less when caught using the *Towkay's* net but are only available for an undetermined, usually short period of time. Therefore, there are attempts to protect a good prawn spot for instance to ensure a big catch by lying to other prawn fishers to discourage them from setting their net there. This is not so much to avoid sharing the resource but more for a practical reason of avoiding difficulty when hauling the nets back into the boat. Particularly, sometimes, there could be layers and layers of nets deployed at a single spot, which makes the task of pulling in one's net harder to do without risking losing the prawn harvest or the net altogether. Once on land, it is reported that some fishers would 'hide' some of their catch from their *Towkay*, with the hope of selling it for a higher price to another buyer. Some fishers admit to this, claiming that they are in reality not doing anything wrong because their *Towkay* have not done right by them too:

These fishers claim that their *Towkay* has not replenished their net with another ten sets as they rightfully should, but give them less, another five sets for example instead. Due to this they would be going out with a shorter net in length, which reduces their CPUE. Therefore, some fishers resort to financing the remaining five sets themselves to ensure that they have at least twenty sets to work with while there are also those who purposely declined net replacement from the *Towkay* and finance it themselves. For this investment these fishers feel entitled to appropriate a portion, if not all of their catch. But because the *Towkay* still have ownership, at least morally, of a portion of the net, they usually still agree to sell their catch to the *Towkay* but would discreetly keep some portion that they deem theirs to be sold 'on the side'.

The fisher from Rhu Sepuluh quoted on the previous page obviously does not condone the practice of selling prawn catch 'on the side' when the net is not entirely owned by the fisher and there are in fact a number of fishers who agrees with him. Pok MJ for example points out that one should be concerned about the blessedness or sanctity of the income made from selling half of the catch elsewhere even when half of the net belongs to the fisher because it may not be his half of the net that caught the prawn. But in Gong Batu where there is only one *Towkay* as explained in the chapter before, such practice is almost unheard of. Fishers here do not have any issue with selling their prawn catch to the sole buyer *Towkay* J because he offers a good price for it at RM31 per kilogramme. The higher price is given because he does not sponsor the nets as is the case in Rhu Sepuluh. Instead, he is the sole supplier of the nets, and very few of the transactions are done in cash. Most fishers purchase their nets in credit, and they are considered morally bound to sell their catch to him due to this. Because the nets are not sponsored but sold by *Towkay* J, they still have to pay the amount that they owe him for the net from the income they make with their catch. To those few who buy their net in cash,

a slightly higher price is given, usually on par with the price given to fishers who use their own prawn nets in Rhu Sepuluh. So unlike the fish sale arrangement that does irk a number of fishers, they are all generally happy with the price of prawns set by *Towkay* J and only those who own their nets admit to selling a portion of their catch to other buyers but this is an infrequent occurrence.

It must be noted that a relatively calm sea during the monsoon season is still rougher if compared to sea conditions during the non-monsoon season, and although they do not go very far off the coast, prawn fishing is still a rather dangerous operation. For this reason, it is also the most nerve-wrecking fishing exploit as far as the local women were concerned. In Rhu Sepuluh, many women are said to wait by the beach, along with their children and family members looking out at sea where their husbands and sons could be still seen in battle with the weather, the prawns and each other, with 'throbbing hearts', as Mok P. I puts it. The return of the fishers is said to always evoke a festive mood[63], with people cheering them when they return with their catch, which Pok S warns must be guarded diligently against impatient prospective buyers as well as prawn thieves[64]! In Gong Batu however, there is no such festivity reported because their fishing base is at the river-jetty. Although they may not wait for their husbands and sons there, their local women claim to worry just as much as the women in Rhu Sepuluh, especially when their young children are the partner at sea:

Jarina: During the hokey season, do you worry?

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[63] The prawn season is often likened to a festival in Rhu Sepuluh because exceptionally during this time, their fishing bases on the beach will be crowded with many people whenever the fishers go prawn fishing.

[64] He refers to some children and youth who mischievous try to steal away a prawn from their catch for their own consumption.

Kak T:For me, when my husband goes out, I don't worry so much. It's only when he takes our son with him that I worry. When Pok L.I says that my husband is really brave to bring our son along, I begin to worry too. Just imagine, if the eldest son who hardly ever sheds a tear, cried of fear after seeing the wave, there at the river mouth where the waves are bigger. But those who are used to it know how to enter the sea. My husband said that he would look out for the declining wave and launch the boat. But our eldest son was not used to it and didn't know how to do it properly. So they crashed into the wave.

Jarina: But that didn't discourage him to return?

Kak T: He was discouraged, but only for two days (she laughs). He went back after that. My husband says that it was because he was still a young boy and didn't know how to control the stern. [He was] Not like his father who has the skill and knowledge. He says that if you see the wave declining, it would then be alright to launch the boat as well, after seven surfs. But I wouldn't know how to count those seven surfs! So Sabri (the son) said, how to count when they kept coming?

(Interview at household 1AKT on 23 May 2009)

Because of the stiff competition during the peak prawn fishing season at the end of the monsoon, a few fishers think that it is best to avoid fishing at that time all together. Instead, they would go prawn fishing much earlier than the others, which Pok R2 claims to have helped him make the biggest catch in 2009 prawn season in Gong Batu. By hitting the sea after the first series of big monsoon waves in November, he had already recorded another good prawn season and had pulled in his prawn net by the time others were starting to go out that year. For those who went towards the end of the season, the yield was nothing less than disappointing and had caused much frustration. This is

possibly due to the great expectation they have after an unusually good prawn season in the year before. An elderly fisher told me that all his life, he had never seen so much prawn as he did in 2008. Those who went prawn fishing that year had earned an income between RM3000 to RM10000, which is unheard of in the past. For this reason, many fishers who usually used a *Towkay's* net had decided to invest in their own to secure higher income in the 2009 season while those who were never involved in prawn fishing joined in for the first time. Unfortunately, few had won their bet, and many who were excitedly telling me about their plans for the 2009 season during my fieldwork in 2008 grumbled about it when I saw them again in May 2009. Indeed, as one fisher puts it, prawn fishing is a risky bet because its success depends mainly on the weather:

> There's been a lot of hokey prawns in the past two seasons. But we don't know how it's going to be the upcoming year. It all depends on the waves. If there are big waves, then there'll be lots of prawn. But if there are no big waves during the monsoon, or if the waves last only for two weeks, then there won't be much. This year's (referring to the last one at early part of the year) monsoon had big waves that lasted for a month. Then it was calm for a while. That's why there were so many prawns. And then the big waves came again for the second time!
> (Interview at household 2BPSu on 24 September 2008)

Due to the unpredictability of the quantity of annual prawn resource, many fishers still prefer to use *towkay*-sponsored nets if possible, as explained in the previous chapter.

Squid fishing

Another important seasonal fishing operation in Setiu and all along the Terengganu coast, from Paka to Kuala Besut is squid fishing or jigging. Technically, it is an extension of line fishing where the hooks are replaced with specialized squid jigs that are locally called *candat* (Figure 17). For this reason, the activity is termed *Candat Sotong*, meaning Squid Jigging. Squid can be caught in the regional waters throughout the year except during the monsoon season (Chotiyaputta 1982), and squid jigging activities begin around March and lasts until September, during which there is an exceptionally abundant squid resource in the coastal area especially during squid-breeding season (Chikuni 1983). Unlike prawn fishing that lasts for a short time, requires an investment in prawn nets and operationally more dangerous, squid jigging requires lower capital investment and it can be operated using a boat of any size[65] for a longer time period.

Figure 18 Squid jigging gears (*candat*)
Source: http://sotonglaut.blogspot.com/2010/05/jenis-candat.html

[65] Even fishers on larger commercial fishing vessels are known to jig for squid, while they are out fishing but only further the coast during the monsoon months. During normal season, the regular purse seine and trawl nets are used instead.

As Parry (1954) noted almost six decades ago, that fishers in the region successfully squid jig at night thanks to the use of artificial lighting from oil and kerosene torches that were suspended above the water from a wooden pole extension. The squid's natural attraction to light at night will naturally be drawn to the illuminated surface. The same strategy is still used today except with more sophisticated lighting devices: from the battery powered torch-lights or fluorescent light bulbs that small-scale fishers use to high voltage spot-lights utilized on commercial boats. This never fails to attract squid to aggregate at the lighted water surface. Then a line, usually attached with three jigs is dropped at the spot and ideally controlled in a draw and release motion, is bound to make a catch. Indeed, it is something that almost anyone can do. For this reason, squid jigging is also a popular activity for tourists. But for practical and safely reasons, squid jigging tourist operations are carried out mainly using mid-size fishing vessels with onboard engines that can transport up to 15 adult tourists per night. Charging an average of RM60 per person, the fisher would have made a good income without worrying about catching anything. Small-scale fishers however rarely venture into this because their boats can only accommodate one other person, which means a tourist income will be insignificant. Hence, instead of having a tourist who needs to be watched over all the time, they prefer an experienced fishing partner that can ensure a good catch. They often go for partners who do not get to go every night due to other commitments such at part-time work at the fish plant or tobacco farming.

Although squid jigging is commonly carried out at night, it could also be carried out during the day. Daytime squid jigging is preferred by those

who have trouble fishing at night especially for elderly fishers where one is required to be up all hours while at sea to continuously jig for squid and to look out for any weather changes during the outing. Night squid-jiggers rest during the day instead. This is often the reason why Rhu Sepuluh fishers who also plant tobacco usually would not go squid jigging when there is work to do in the farm during the day. In the case of Gong Batu, almost everyone who jigs goes during the day because they consider night fishing too dangerous due to the over-exposure to their coastal waters.

However, daytime squid jigging also means partially losing the advantage of using light to attract the prey. Instead, fishers have to locate squid's natural aggregation spots otherwise known as their nest. Fishers from Gong Batu go out early in the day, usually in groups to search for a nest using the same method as jigging. The only difference is they hope to find squid eggs stuck on their line when it is drawn because this would indicate that the nest lies below. Finding a squid nest is similar to 'hitting a jack-pot' in this part of the world because an abundance of squid could be harvested for days at a nest. Although it is always implied that finding a nest is all a matter of luck, the fishers also rely heavily on their local ecological knowledge in their search activity:

> Jarina: Before they came trawling here, how long could you jig for squid at the nest?
>
> Pok DS: Very long time. Sometimes even up to a month. When we look for squid nest, we know where to look. We know areas that have sandy bottom, or those with soft bottom. Then there are deep and shallow bottom (high and low sea bottom morphology). There's *teranas, kopeh* we call it and areas with *kulat.* And the squid will be laying their

> eggs at the hard bottom area that we call *kopeh*, and not at the soft bottom area. And we village folks already know this for generations. And by looking the Bintang Mountain, the Chepu Island and the other islands, we know where to throw in the line. So even if we don't have the (sub-scan) sonar, we know where to look. So people say that this place is not good for fishing, when in fact there are specific places to identify as fishing ground.
>
> (Interview with Pok DS on 10 May 2009)

As explained in the interview above, finding a nest is not only important for current fishing but also for future seasons as squid are said to always congregate at the same spot. New locations are therefore marked for future reference while those found in the past become traditional hot-spots that are always a good place to start when looking for a squid nest, and it is not uncommon that the discovery of a nest is made by those who are not looking for it:

> Pok LI: (...) Usually, I would not be the first person to find the squid. Usually, it's those folks that do not look for squid, like the *kaya* net fishers, who find it first because the eggs gets stuck to their net. So they would be the one to tell us that there's squid already and where their net had hit the eggs. The nest is never too far from the eggs, where the females are. So once we get that information, we would set out together to look for the nest. We go in a group but not too close to each other to draw the line looking for the nest. And within the group of fishers looking together, at least one would surely hit it with his line. He would know when he hits a female that is laying egg. The ones at the eggs aren't female squids but male ones, guarding the eggs. The males

are small in size while the females are big, weighing a kg per three squid. So the *kandang* actually refers to the eggs.

(Interview with Pok LI on 21 May 2009)

Although a great amount of effort and cost are involved in finding a nest, they are paid off handsomely when a nest is found:

Pok M: Last year, I found four, five nests but not a single one yet this year.

Kak J: We made more than RM1000 a week last year. So in four weeks, we made RM9000.

Pok M: Last year, whenever people didn't see me, they would ring me. They'd be looking for me.

Kak J: They called you Squid King, didn't they?

Pok M: Yes. Because I went looking hard for the nest.

Kak J: He spent a lot of money on fuel to look for the nest. Fuel was expensive last year, remember? So we spent time and fuel to look and once we find the nest, they just easily join to jig there. But they wouldn't want to join looking for the nest. At least this year we get the subsidized fuel so it's only half the cost now.

(Interview at household 1APM on 5 May 2009)

Those who worked hard to look for the nest are appreciated as the information on a discovered nest is always shared with other fishers from the village who then join the jigging. I was actually told by a fisher from Rhu Sepuluh that the Gong Batu fishers never leave their jigging spot until their colleagues come to take over the jigging from them, and through this 'relay practice' at the nests, they are able to keep the squid resource exclusive to their fellow villagers. Not everyone among fishers from the village is welcome: some 'free-riders' to

whom Kak J alludes to at the end of the next interview excerpt are not. They refer to those who refuse to put in effort and resources but only seek to reap from the efforts of others, and usually also take more than they deserved. In Gong Batu, such fishers are called *lubo*k, which refers to deepest part of the water body behind their backs because their opportunistic behaviour is likened to the way that this area quietly accumulates all the debris that fall into the water, explains Pok LI:

> Pok LI: (...) there is still a spirit of friendship among fishers at sea. We can still depend on other fishers at sea. But there are times when disagreements happen. Well, I can't say real disagreements, but there'll be perhaps one or two who while we always cooperate to look for the nest together, there are some who are stingy and would not go out with us. Looking for the nest can be a costly affair, because it's not easy to find it. When we go out, let's say ten boats together, while one or two boats stay behind. So those who go will be looking at many places and therefore use a lot of fuel. But once it's found, they (those who didn't go looking) will be the first to go out and the last to return. This is why this type of people is a bit marginalized. Nothing serious, but we call them names.
>
> Jarina: What names are they given?
>
> Pok LI: We can them *Lubok*. Because when they go, they will not budge anymore. They go only when the nest has already been found and they would not leave until all the resources have been exhausted. They have the equipment to mark the place so when they hear that we have found the nest, they would come and lock the location into their machine so they can easily find the spot again; while we who use land marking will have more difficulty to find the exact spot again. That's why people do

talk badly of these individuals and sometimes criticizes them. But they don't seem to be affected by the criticism.

(Interview with Pok LI on 21 May 2009)

It is not difficult to understand the resentment of other fishers, especially those who spend their time and resources looking for a nest, towards these *luboks*. It gets even more frustrating for the former when a nest is found after many hours spent searching because it leaves them with only a limited amount of time, energy and fuel[66] to benefit from their discovery. The *lubok* would instead arrive fresh, with a full tank to jig for hours upon their arrival. Their resentment is further heightened by their concern on long-term availability of the discovered squid nest due to a bigger external threat that looms over the local fishery resources. In the past, they would not have minded their unscrupulous opportunist peers as they could always return early next day to the same spot to continue jigging with hope to make a bigger catch than the day before. But now, they have more skepticism than hope to do so because squid and other local fisheries resources are being 'greedily devoured' by large commercial fishing operations such as trawlers and purse seiners. This brings me to discuss, in the following section, the other types of fisheries that operate in Setiu and the impacts that they have on the local small-scale fishing operations, which interestingly are linked to artificial reefs in the area.

[66] Although fishers let their boat drift, thus saving fuel usage while they are locating the nest, they still have to go scouting at various possible spots. This consumes fuel and with more fuel used while looking for the nest, the less there is to power their return with the catch. Therefore, the amount of catch that a fisher can take depends on the quantity of fuel that he has left in his tank.

Illegal commercial fishing operations and artificial reefs in Setiu coastal zone

In the following sub-sections, I discuss the commercial types of fishing operations that illegally encroach into Setiu small-scale fishers' fishing zone, namely trawl fishery and purse seine net fishery. A background of these operations is provided as I explain how each fits into the small-scale fishery scene in Setiu. Through these discussions a link between artificial reefs and small-scale fishers is revealed. The relationship is however complex, and the line between positive and negative impacts is blurred as artificial reefs become at the same time a solution as well as a problem to small-scale fishers.

Trawling activities in Setiu coastal zone

Trawlers[67] are unequivocally detested by Setiu small-scale fishers. In both villages, it is generally recalled how there used to be a lot of fish in the local waters. But this soon changed when modern commercial fishing operations such as the double trawl operations known locally as *pukat Harimau*, literally meaning Tiger net were introduced in the area in the late 1960s:

> Jarina: So when did the trawlers start coming?
>
> Pok L.I: I can't really remember when exactly but they were already here when I was a child and we still lived on the beach.
>
> Jarina: And the village moved here in 1964.
>
> Pok L.I: Yes. They were already here then. They had really big nets and the village folks used to call their net '*pukat Harimau*'. Have you ever heard of this? Only after that were the trawl nets as we know today were introduced. Those big ones devoured everything, thus the name Tiger. That's what caused the destruction in the area.
>
> (Interview at household 1APLI on 21 May 2009)

[67] This refers to fishing operations that use trawl nets.

When asked to explain further on how trawl fishery had destroyed the local fishery resources, it is often mentioned in Gong Batu where trawling continues to be a problem that the trawling activities had caused the destruction of a thriving marine ecosystem that consisted mainly of a marine organism that is locally known as *kulat*[68] along the coast:

> PA: Now there's no more *kulat* here because of the trawlers. There used to be more fish in the area because there was a lot of *kulat* then. So there were all sorts of fish, because there were no trawlers. But now, with the trawlers, fish even as small as this (he shows the size of the fish using his fingers) would be gone.
> (Interview at household 1APA on 18 May 2009)

A report of the first scientific expedition along the East Coast coastal zone in 1962 supports their claim of past *kulat* abundance in Setiu. It states that the North-Eastern coast of Terengganu was characterised by persistent presence of coral beds. However the presence of such substrates was not a deterrent to double trawl operations because with the size of their nets any substrates in the net's path could be dredged into it. Nevertheless, as a result of the apparent damage that this fishing method caused to coastal fishery, it became widely opposed by small-scale fishers and fisheries scientists alike. In Malaysia, riots broke up in Endau, in the neighbouring state of Pahang where angry small-scale fishers resorted to attacking trawl net operators. This

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[68] Kulat literally means Fungi or Mushroom. It is suggested, after much discussion and thought on the subject, that this marine organism may refer to either a colony of marine sponges or giant sea fan that most probably was the main species found in a coastal reef system. Its possibility of being corals is omitted because the word *karang* that specifically refers to corals is not used.

eventually led to a total moratorium of double trawl fishery in the country under the Fisheries (Prohibition of Methods of Fishing) Regulation 1980 as well as the creation of designated fishing zones where the coastal zone became exclusive fishing ground for small-scale fishers.

Despite the legal prohibition on commercial fishing in coastal zones, encroachment by trawlers continues to be an issue in Setiu, especially in Gong Batu where trawlers are a constant threat to their safety as well as the sustainability of the local fishing resources, especially during the squid season:

> Jarina: That (trawlers approaching very closely to small-scale fishers' jigging spot) must be quite dangerous for small boats.
> PA: How could it not be? That's why we always move away when they come. They always approach groups of fishermen that are jigging at a spot and if they come while the squid are fertilizing the eggs, the fishers who are on the side wouldn't get anything as all would be taken by them. That's why it (squid nest) finishes very quickly. When we jig, we take one by one but they would take 200 to 300 kg. So how can the squid (resource) sustain long? Not long while the trawlers are there. They are really dangerous, these trawlers.
> (Interview at household 1APA on 18 may 2009)

The presence of trawlers in coastal fishing zone also has an indirect impact on the local small-scale fishery. Besides destroying the fisheries resources and marine ecosystem, trawlers are said to also cause damage to *unjangs* set up by local fishers, and having lost quite a number of *unjangs* in the previous year, some fishers like Pok J have decided to stop making new ones. Therefore, trawling activities are a hindrance to fishers' fishing innovations and efforts,

thus counter-productive, and their continued presence stir anger and frustration among fishers who accuse the authorities of not taking the necessary action:

> Jarina: Trawlers come during the day or night time?
>
> Pok J: Well, during the squid season, they come at night and during the day! It's those trawlers from Besut. They are free (to do as they like). Even if the fisheries people came, they would just draw their net up and leave. That's all.
>
> Jarina: You mean the enforcement is lax? What about the marine authorities[69]?
>
> Pok J: Yes, it's lax and it's the same with the marine people. I don't think they've ever been here. Actually, whether it's the fisheries, police or whatever, it makes no difference because they have eaten this (he indicates a gesture meaning money with his fingers and the wife laughs lightly). So if they eat that, it's difficult (to enforce).
>
> (Interview at household 1APJ on 23 May 2009)

Thus, trawlers continue to be an issue of concern in Setiu, albeit more gravely in Gong Batu than Rhu Sepuluh due to enforcement issues. But to this problem, artificial reefs are reportedly a practical solution as discussed in the next section.

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[69] Because an overlap in authority was identified as the major impeding factor the enforcement of marine related legislations in the country, the Malaysian Marine Enforcement Agency (MMEA) was set up under the Prime Minister's Department in 2006 to centralize enforcement effort in Malaysian waters. The agency has the power to take action on any offense committed against the Fisheries Act 1985, Marine Park Act 2005, Marine Transportation Act, Environmental Protection Act 1973.

Artificial reefs as anti-trawling devices

In coastal zones where the water is shallower than at open sea, trawl nets usually end up operating in a dredge-like manner on the sea bottom and take in almost everything in its path- marine organisms, *unjangs, bubus,* small coral structures etc. The trawl nets however can be damaged when caught on objects or structures that are too large or too heavy for it to pull in. For this reason, risky waters with large natural rocks are systematically avoided by trawlers. Similarly areas with large size artificial reef structures are also avoided. Thus, artificial reefs are recognized as an effective trawl deterrent device in coastal waters (Santos and Monteiro 1998 and 2007; Jensen, Collins and Lockwood 2000; Relini et al 2007). In the Setiu scenario, this suggestion holds true when a simple comparison of facts are made between the two case study sites: on the one hand, encroachment by trawlers is almost unheard of in Rhu Sepuluh village which waters have the highest number of artificial reefs sites in the country; on the other hand, trawlers encroachment is a heated issue in Gong Batu village which waters has the least number of artificial reefs. However, the deployment of a new artificial reef complex just the Gong Batu coast in September 2008 seems to cheer up even the most skeptical fisher in the village who now share his fellow fishers' opinion belief that their problem with trawlers may soon be over:

> Pok A: With the trawlers around, people can't jig for squid for a long time. In Beting Lintang for example, there's a lot of artificial reefs so they dare not go in because they are afraid of getting their nets damaged. So the jigging is longer there. But over here, there's just a bit, with the new AR you know. But they got hit already. So they ran away. They wouldn't go in anymore after that. Otherwise, they would come to trawl so, so closely to where

> we are jigging. (The distance would be) Just about from here to there (he indicates a distance between where we were sitting and to a point about 15 metres away), they would come.
> (Interview at household 1APA on 18 may 2009)

Under RMK9[70], anti-trawling feature is the most important specification set for artificial reefs structures deployed by the Department of Fisheries (DoF). During an interview session at the agency's national headquarters, the officer I was interviewing confided that the decision to prioritize this type of artificial reefs was given personal supported by the former Prime Minister Abdullah Badawi himself. Upon resuming his post as the country's premier in 2004, he was reportedly briefed by the department that the biggest issue for coastal fishers was the encroachment of commercial fishing operations in Malaysian coastal zones due to weakness in enforcement. He was said to have then asked for suggestions on practical measures that can be taken to stop the trawlers, and when told that the presence of large artificial reefs structures has been proven to deter trawlers from encroaching, he made a personal request to the agency to intensify such efforts. Although artificial reefs with anti-trawling features have been introduced in Malaysian waters since the 1990s (Sukarno et al 1994), the 'top-level' support allowed the Department of Fisheries to embark on a larger scale research and development of anti-trawling type of artificial reefs. The result is the introduction of heavy, large-size artificial reef structures with built-in anti trawl net devices (see Figure 19: photo of anti trawling artificial reef units) that are deployed not in large clumps as it used to be done before but in a barrier-like setting along the coast .

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[70] The 9th Malaysia Plan, which is a 5 year national development plan for 2006 until 2010

Figure 19. Anti-trawl artificial reefs units

With this change of direction, the agency's effort seems to be striking the right chords and assuming that the positive outcome in Setiu is representative for the nationwide initiative, the move may well be the most effective one taken by the Department of Fisheries in coastal fisheries resource protection since a while. However, these fishing operators are not the only illegal fishing operations in Setiu coastal waters. In the next sub-sections I will describe purse seine illegal operations which are undeterred by the presence of artificial reefs and instead benefit from a better reputation than the trawlers.

Purse seine activities at Setiu artificial reefs

Purse seiners are another type of commercial fishing operation that encroaches into small-scale fishers' fishing zone, and those that operate at night are said to frequently intrude into the coastal zone to fish especially at artificial reefs. It may therefore be suggested that while the quasi-absence of artificial reefs in Gong Batu could explain why purse seiners reportedly seen only rarely there, their omni-presence in the coastal waters of Rhu Sepuluh could to be the reason for the much-felt presence of purse seiners in the area (See Figure 20 of a purse seine boat in Penarik River). This sub-section discusses the perceived performance of fisheries resource enhancement at artificial reefs sites and how this may be attracting illegal purse seine operations in the coastal zone, which in turn negatively impact Setiu small-scale fishery.

Figure 20 Purse seine boat at Penarik (near Rhu Sepuluh)

Performance of artificial reefs as fisheries resource enhancer

In Setiu, artificial reefs are not only perceived to provide protection to local fisheries resources by deterring trawlers' encroachment. They are said to effectively rehabilitate coastal resources in addition to protecting them because they are suitable for fish breeding as well:

> Pok L.I: It (fish abundance) all depends on the availability of places. Places where they can breed. For example area where there're a lot of artificial reefs, then there'll be a lot of fish. But here, the sea in front has only three artificial reefs. But they are tyre type of artificial reefs and are old ones. There near Fikri, in front of the river mouth. It's been there for a long time already. So there are a lot of fish at artificial reefs sites. So if there's any plan to increase the number of artificial reefs sites, fishers would not object.

Indeed, due to the perceived success of artificial reefs in protecting and enhancing local fisheries resources, artificial reefs programmes are in great demand in Setiu. In Gong Batu for example, requests for help to acquire more artificial reefs in their local waters are frequently made by fishers. Nonetheless not many fishers admit to be fishing at artificial reefs and two reasons are given for this:

Their first reason is not knowing where the structures are located. Local fishers claim that they are no longer involved in artificial reefs deployment programmes by LKIM and at worse, not informed of the activity. When asked about their effort in disseminating information on artificial reefs deployment to local fishers, LKIM officers who are in charge of artificial reefs programme at

national and state levels explained that the information is shared with their local (district) level counterparts and Fishermen Association, who assumedly in turn relay the information to local fishers. But all the participants in the research claim to have never been told of a deployment activity by either the local LKIM staff or their local representatives at the Fishermen Association. Furthermore, although the newly-created LKIM artificial reef sites are systematically marked using buoys upon deployment to indicate their location, these buoy markers reportedly never last long as they are often cut off soon after deployment by ill-meaning saboteurs who wish to keep the information to themselves. Often, the more recent artificial reefs sites usually only become known to small-scale fishers either by accidentally 'stumbling' upon the site while fishing or through a fisher friend who did.

While the LKIM does attempt to inform small-scale fishers of the location of their artifial reefs, SEAFDEC on the contrary does not. Locations of artificial reefs set up by this fisheries research agency is intentionally kept undisclosed to fishermen. According to the agency's special officer in charge of artificial reefs programme, their artificial reefs are created with the objective of fisheries resource conservation and research, unlike those set up by LKIM that are meant for its exploitation. Therefore, they are of the opinion that sharing information on their artificial reefs location with fishers will only impede these objectives as the former will deplete the site of its resources.

The position taken by the fisheries officer aligns with many fisheries scientists who argue that artificial reefs can in fact increase the rate of overfishing instead of fish production (Pickering and Whitmarsh 1997), and promote the designation of artificial reef sites as no take (fishing) zones. In fact, while attending the International Conference on Artificial Reefs and

Related Aquatic Habitat (CARAH) 2009 which is probably the most important international conference on artificial reefs development and research, it seemed apparent that most fisheries scientists regard fishers as hunters who will never understand the concept of fisheries conservation (conference publication unavailable at the time of writing). The fishers who are involved in this research would however disagree to this because unlike scientists who only know the theories on fishery and the marine environment, they understand and know their reality:

> Jarina: So what is your opinion regarding AR?
>
> Pok DCM: If you want it to be very good, we should ask for more. The thing is, most people don't know the basics. For example, people say that we mustn't set the artificial reef at soft bottom area. That's not true. The same with the Fisheries office folks that say this and that about rearing fish but they only read what's on paper. They don't know the real situation. But fishers, they know the true condition at sea. They go every day. It does not matter whether it's soft or hard bottom. It's the same with *Kerapu* (Grouper), they don't like sandy area. You know why? They like to play in the mud. It would be best for them to set up more (artificial reefs) in the east side where they've already set up the last one. This is because I have noticed that in the past few years, it is a favoured nesting area for squid. At the new artificial reef site, there's already a net entangled. And according to the village folks research, fish will not go anymore if there are nets entangled at the site. The site will die. When any fish get caught to the entangled net, they will scream and this will cause other fish to stay away. So if there's any grant or plans to set up artificial reef sites, do ask for more to be set up there. Just off Lang Tengah and a bit further than the *Tokang* artificial

> reef. (...) When I was (fishing) in Kuantan, I did deploy tyres to make AR. But it is not as good. If it takes two months for tyre artificial reef to have fish, it will only take just one for this type. Because with tyres, they will emit some kind of oil once they're in the water. That oil has a smell which fish don't like. So it's hard for the barnacles to colonise it.
>
> (Interview with Pok DCM on 6 May 2009)

The above interview suggests that the knowledge of small-scale fishers such as Pok DCM is not limited only to fish behaviour and local marine conditions, but also include artificial reefs[71] performance. The oil emission mentioned in the interview refers to chemical leachate from tyres used as artificial reefs material which has been scientifically documented worldwide[72]. Fishers therefore feel offended when brushed off by scientists and fisheries managers as simple opportunistic hunters when they are in fact the one who know what really happens at artificial reefs, which brings me to the second explanation on why small-scale fishers do not fish at artificial reefs: the fishers do not fish at artificial reefs because they claim that while there may be significantly more fish at artificial reefs sites, it doesn't mean that they will end up in a small-scale fishers' fish basket. They end up instead, as Pok R2 explains below, in the purse seiners':

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[71] Although research participants have been found to repeating what they have heard scientists say while discussing environmental related issues (X) it would be unlikely that the in question is doing due to the very limited access to artificial reefs research and related information in Malaysia.

[72] The finding has led scientists to suggest that this once most popular material for artificial reef development are unsuitable for artificial reefs development

Pok R2: They (small-scale fishers) don't get it (the benefit). It's the big operators, like the night purse seiners who do. They set up lights to fish there. So it doesn't help the small-scale fishers but the big ones. (Interview at household 1BPR2 on 18 May 2009)

Artificial reefs as attraction to purse seine operations in Setiu coastal waters

Unlike trawlers that have to stay away from artificial reefs sites to avoid damages to their net, purse seiner can operate at artificial reefs sites because their nets are used between mid and surface levels and fish is lured using high-beam lighting into the centre of the net before they are trapped within it by closing in at the gait and the rear side of the net. During their operations at artificial reef sites, fish can be lured away from the substrates and into their nets that are set in the periphery of artificial reefs structures. Artificial reefs can therefore be effectively used in this type of fishing operation.

As explained in chapter II, their deployment in Setiu coastal waters since the 1980s is meant to enhance the depleted coastal fisheries resources and create nearshore alternative fishing grounds for local fishers. This is especially important for line fishers whose gear is most suitable for demersal and semi-demersal fish species that could be found at artificial reefs. But as alluded to in the above interview, purse seining activities at artificial reefs result in loss of catch opportunities for small-scale fishers who in the end still have to go fish further off the coast to make a good catch:

Pok S: (...) (But) The only thing is, those small-scale fishers who want to fish using hook and line at the artificial reefs can't do so anymore. There's just no fish anymore! How can there be fish as the night purse seiners are always fishing there. So these small fishers like Pok Chik have to go further out to fish. It makes not much difference for him

maybe as he has never fished too far out but the others, they have to go to Lang Tengah island, Perhentian Island to fish. If they want to rely on the artificial reefs, they can't as the big fish are no longer there. Of course there may be smaller fish, like juvenile groupers or snappers or remong but what are they worth?

Jarina: Some say that the lightning netters would take small fish too.

Pok S: Of course! Whatever gets in their net! The small ones, they would sell to fish-based food industries or as trash fish. Everything goes for them, because nowadays, any fish has value. Just take out the rocks and wood.

(Interview at household 2BPS on 18 September 2008)

The above interviewee who is a gill netter seems to suggest that fishers cannot fish at artificial reefs because there is no fish left on site after their operation. However, further probing into the problem reveal a different but more interesting explanation on what causes the loss of catch potential at artificial reefs where purse seiners had been fishing the night before. Some fishers are of the opinion that artificial reefs systematically become bad for fishing not because all the fish would have been caught by the purse seiners, which they explain is quite impossible because only pelagic and semi-pelagic species and not all fish can be lured by light, but because the fish that were not caught would have abandoned the site due to a phenomenon called *ikan perit* literally meaning 'fish in distress' by local fishers:

Jarina: Is it true as some say that the fish will be *perit* (when caught in a net)?

Pok M: That's right. It's the same with *bubu*.

Kak J: How is that?

Pok M: The fish that got caught, either on the net or in the cage will scream and this will make the other fish *perit*.

(Interview at household 1APM on May 2009)

Warned by the screaming capture, other fish become distressed and will avoid the area where the capture occurs, and this phenomenon reportedly happens with all fishing methods except line fishing. Ironically, it affects them the most:

Jarina: Do their (purse seiners) operations at artificial reefs affect the local fisheries?

Pok MJ: For us *bubu* fishers, it doesn't affect us. For line fishers, definitely. This is because line fishers go out during the day with hope to get Queenfish for example. But there's none anymore because they have been lighted up the night before by the purse seiners. It's worse for Scads. For *Kaya* netters, the purse seiners usually don't fish in areas where they (*Kaya* netters) have been successfully fishing because they know there's no fish for them (the purse seiners). Because the fish would have run away. When a shoal of fish gets caught in the net, they will, like us, scream. So the other shoals would hear and run away from the area. So there's no fish anymore. So why would they wait there?

(Interview at household 2CPMJ on 17 October 2008)

In Gong Batu where purse seiners do encroach albeit less frequently than trawlers, fishers claim that they too do not fish at artificial reefs where purse seiner has fished recently. It is said that purse seining activities at artificial reefs will result in a condition that the local fishers term as *lecor*,

which literally means blistered that also ruins opportunity for good fishing at artificial reef sites:

> Jarina: So if the fish at the AR were not disturbed by others, it would be easier for fishers like you, because you would not have to go so far, right?
>
> Pok A: Yes, we could just go line fishing there. But if the night purse seiner had been there like last night, at best I'd get only three catfish. I met Nuar just now and he told me it was not worth going because there wasn't any fish. The purse seiners had lighted up at the AR last night. I went anyway and true enough, the fish didn't bite, except for the three catfish. You know why? Because the fish there would be blinded by the light from the night before and would become an easy target for the bigger fish. So the big fish like the *haruan tasik* would not bite our bait because it's already full after eating the other fish there.
>
> Jarina: You mean the big fish would not eat because they could easily prey on the blinded fish at the artificial reefs?
>
> Pok A: Not really. There would be the small and juvenile fish that would escape from the net. That will be the prey for the big fish. So when they can feed easily on that, they would not eat our bait.
>
> Jarina: That's interesting. I have before heard that after the purse seiners light up at the AR area, fish would be gone. But this 'full' fish explanation is a new one for me.
>
> Pok A: They are not all gone. They are still there. So the first explanation is that they are full after eating the small fish. The second one is their eyes get blinded by the lights, so they don't

see too well. The fish will not be all gone. That's why the purse seiners always encircle the artificial reefs area because fish like to stay put after they're exposed to the purse seiner's light. You know why I say this? Because I've seen this effect even when the purse seiner had not launched their net after they had lighted up there. There was still nothing to catch afterwards.

Jarina: You're talking about the blinded fish effect?

Pok A: Blinded fish and big fish being full from easy prey. You know, fish would definitely bite if they're hungry. Just like us.

Jarina: So their eyes become blinded?

Pok A: They don't see so well.

Jarina: So they can't see the bait?

Pok A: Well, even if they see the bait, with a full stomach, they could not be enticed to bite. They would just approach the bait and then not bite, because they're already full. They may still bite, but very rarely. So they would first of all prey on the juvenile fish. But these big purse seine nets, they could actually catch everything at sea as they just haul up everything. But it's more because the fish don't eat the bait anymore.

(Interview at household 1APA on 18 May 2009)

The explanation given above is based on a very sound knowledge of fish ecology and result in a sophisticated assessment on the direct and indirect effects of purse seine operations to the fish community at artificial reefs. In the first place, it acknowledges that not every type of fish is lured by the lights set up during purse seine operations. But it also explains that the fish that are attracted to the light especially the smaller sized ones may still escape the net. However, their sight becomes temporarily compromised due to the exposure

to the bright light. It is suggested that to a certain extent, this may affect fishing because the blinded fish are not able to see the bait. It is then suggested that the more possible situation would be that the blinded fish become easy prey to their predators, i.e the bigger fish that line fishers target to catch at artificial reefs. Thus, the larger fish can easily feed on the blinded smaller species and simply become too full to be interested in the bait used by line fishers. Hence, because of the disruption that is caused to the natural food web, fishing at artificial reefs after a purse seine operation is bad because one will have difficulty catching even a small fish. For this reason, purse seiners' encroachment is a concern for the small-scale fishers, especially Gong Batu line fishers who do hope, after claiming to have been deprived of artificial reefs for so long, to be able to finally enjoy the benefits resource enhancement at artificial reefs, especially when the newly-deployed complex seem to already be thriving with fish:

> Pol LI: (...). You know, there's already some *selar* at the new artificial reefs. There are *talang* and the other big fish like *haruan tasik* and *tenggiri.* But the most abundant is *dingkis*. If we approach the water surface, they will appear. A lot of them and big ones.
> (Interview at household 1APLI on 21 May 2009)

They therefore denounce the purse seiners' activities in the coastal area for who evidently have reaped all the benefits from the success of resource enhancement at artificial reefs sites:

> Pok J: They (artificial reefs) definitely are beneficial, but there're these purse seiners who light up to fish there.
> Jarina: Yesterday, quite late in the afternoon I did see some lights at sea from the beach. Could that be them? Or were those squid net boat?

Pok J: Probably purse seiners. Although they (squid net fishers) could be out there at the same time. But boats that fish for squid don't go near artificial reefs. But purse seiners would. They would set up lights in the artificial reefs area first and when they want to deploy their nets, they draw the lights out of the artificial reefs a bit and catch the fish in their nets. That's why fish are hit there. Look at Tok Bok the other day. He got RM10,000 in just one night. He went to the artificial reefs near Chepu. And we go the next morning and get nothing, because they've already been hit the night before! But in the past, at the artificial reefs, there used to be a lot of fish caught there. The Spanish mackerel, *ebek*, but now that the purse seiners light up often, there's not much left.

(Interview at household 2DPJ on 7 Nov 2008)

The presence of commercial fishing operations in Setiu coastal waters adds complexity to the local small-scale fishing scene. As recently discussed, the presence of artificial reefs in Setiu has contrasting consequences to the two types of fishery: while artificial reefs become a solution to the problem that commercial fishery causes to small-scale fishery, the successful resource enhancement of artificial reefs also has negative implications on small-scale fishery. And interestingly, although the purse seine activities at artificial reefs and trawling activities in coastal waters are both illegal and harmful to small-scale fishers' livelihood, they are accorded different statuses by the local small-scale fishers: trawlers are a detested enemy at sea while purse seiners seem to benefit from greater tolerance. This is an interesting finding, to which I return later in the thesis.

Conclusion

In this chapter, the background of Setiu small-scale fishery is provided in some detail: the ways that the authentic fishers carry out their fishing as well as the challenges that they face. Various fishing methods are found to be in use by Setiu small-scale fishers' in carrying out their fishing activities in normal and seasonal fishery. While environmental, technical, economical and social factors influence their decisions, the choices they make on how to fish also influence their other choices, from fishing bases to people to befriend to bad fishing practices to denounce or tolerate. But their perception of the state of local fishery, especially with regards to resource availability also affects the strategic fishing decisions that they make. For this reason, Setiu small-scale fishers have great expectations on artificial reefs to protect and enhance coastal resources that are unfortunately threatened by bad fishing practices.

These discussions on the different types of fishing operations found in Setiu coastal waters, in both small and commercial scales help towards understanding that the dimensions of small-scale fishers-artificial reefs relations with are not confined to their types of fishing activities but also related, and perhaps more so, to other types of fishery as well. In relation to artificial reefs, the chapter highlights:

- The importance of understanding the diversity of coastal fishery in ensuring the effectiveness of artificial reef deployment, and its evaluation. In Setiu, small-scale fishery consists of various types of fishing activities, which may or may not be technically suitable for use at artificial reefs
- The complexity of artificial reef impacts on Setiu fishery. In relation to illegal trawl and purse seine operations in Setiu, artificial reefs are

perceived to deter the former from encroachment, while they unfortunately seem to attract the latter

Indeed, fishing is a complex organization of networks that is not only maintained at sea but also on land. Neither is the network limited only to those who carry out the same type of fishing. Alliances are made between good fishers and even with those who are not, which result in making compromises and shelving disappointment on lost opportunity for the sake of making new, better ones. With this understanding of the fishing activities that take place in Setiu, we can now turn our attention to discussing in the following chapter the way that the participating fishing households evaluate poverty and wealth, and how these evaluations are related to these various ways of fishing.

Chapter IV

Statuses of poverty and wealth among Setiu small-scale fisher-folks

In the fisheries sector, artificial reefs programmes have been developed mainly to benefit the livelihoods of small-scale fishers with the objective "to free them from the clutch of poverty" (LKIM 2009). Ungku Aziz, the most prominent rural development theorists in Malaysia defines poverty as "a vicious cycle of low productivity, malnutrition, lack of infrastructures, low incomes and unemployment embedded in structural defects, reinforced by imperfect competition (middlemen monopoly-monopsony) and the relative neglect of the rural economy" (Ungku Aziz, 1964). This structural view of poverty resonates in the country's poverty eradication policies (Daud and Othman 2005), where great focus is given to providing (economic) adjustment instruments to the poor. In the fisheries sector, the incidence of poverty remains high although there has been a steady decline from 73% to 44.7% between 1975 and 1985 (Ishak and Chang 1993). For this reason, the sector continues to be a target of poverty eradication programmes in Malaysia.

In this chapter, the poverty concept is explored but from the perspectives of the intended beneficiaries of artificial reefs development programmes in Setiu, Terengganu. As Berstein et al (1992) argued, it is through people's experience and perception of poverty that complex realities can be investigated beyond the consumption and income-based definitions of poverty that ignore the trade-offs that communities are willing to make to have

a more meaningful life. The often-assumed homogeneity of rural societies is challenged, by addressing the questions on what it means to be poor to Setiu fisher-folks. These perceptions of poverty reveal how rural societies are not as homogenous as they often would seem to outside observers but are in fact differentiated in income and levels of wealth (Crehan 1992).

The inquiry into the locally perceived meanings of poverty provides important insights on the communities' agency in their livelihood making. The identification of the criteria used by research participants to categorize the poor and the wealthy in their community as well as to evaluate their own socio-economic status demonstrates their sense of awareness and constant monitoring of their livelihoods. The pro-active nature of local communities' is made evident in this chapter through the emphasis given on how they constantly evaluate their past, present and future livelihood circumstances. In turn, these evaluations impact the decisions they make with regards to other livelihood components, namely assets, access and strategies.

I begin this chapter by examining the complexity of the poverty concept and Setiu 'disclaimer' perspectives on poverty. I then consider the three categories of household wealth that were (self) identified among households of Setiu small-scale fishers; the factors that contribute towards wealth differentiation between surveyed households and the 'official' poverty classification that is claimed by all members of the community regardless of their wealth status.

Perceptions of poverty

In Malaysia, poverty eradication strategies have been set in national development policies since the early 1970s. These strategies were first

launched under the New Economic Policy (1970 to 1990) with the objective of eradicating poverty among all Malaysians irrespective of race[73]. They were later taken up in the National Development Plan (1991 to 2000) with further emphasis on the hardcore poor. In the current National Vision Policy (2001 to 2020), the target is to fully eradicate the incidence of poverty by the year 2020 with strategies that focus on improving the quality of life of the bottom 30% of the Malaysians households (Malaysia 2006). In a paper presented by an officer of the Economic Planning Unit (EPU) of the Prime Minister's Department in September 2005, the incidence of hard-core poverty was reported to have been significantly reduced to 0.7%.

In these official reports, poverty is identified using a Poverty Line Income (PLI); an income-based definition of poverty. A household is considered poor if its monthly income is below the PLI. This refers to the minimum level of income required by a household of five individuals to enjoy a decent standard of living that covers basic needs such as shelter, food, clothing, fuel, transport, education, health and recreation. If its income is less than half the PLI, then it is considered a hard-core poor household (Prime Minister's Department 2005). The PLI is adjusted annually on the basis of the Consumer Price Index and was at RM500 in 2007. Under the *Skim Pembangunan Kesejahteraan Rakyat* (SPKR) or Development Scheme for Citizen Wellbeing since the National Vision Plan (NVP) programme that was launched in 1990; a thirty-two page "Head of Household and Poor Household Profile Registry" form has been made available by the Ministry of Rural and Regional Development's Poverty Eradication Unit for the identification of programme beneficiaries. The information gathered is compiled in a national level poverty

[73] There has been an emphasis on eradicating poverty among Bumiputras (the Malays and indigenous peoples of Malaysia) since the 1969 political and social upheaval, which was reportedly caused by the grave ethnic-based socio-economic disparity (between the Malays and Chinese and rural and urban area).

database called the *e-Kasih*. According to this national poverty database, in 2006, Terengganu recorded the highest incidence of poverty among fishermen in Peninsular Malaysia, and Setiu is one of the districts with the highest poverty rate, with almost a third of the fisher households identified as poor.

In this section, poverty is discussed, but from the perspectives of the Setiu small-scale fisher-folks to "counter the dehumanizing effect of poverty-line statistics that aggregate the poor as a uniform mass" (Berstein 1992 :22). In researching the economy of a Malay fishing community in the North-East coast of Peninsular Malaysia, Firth (1975: 294) had noted that "even in this comparatively simple peasant organization resources and income are sufficiently varied to allow one to speak of poverty and wealth". In the Kelantanese[74] fishing villages he studied, the wealth categories were found to be based on one's material deprivation on the one hand, and on one's material surplus on the other. Firth thus identified three categories, which mainly grouped those with great material deficit at one extreme, those with material surplus on the other extreme, and those "who have enough" in between the two. This three-tiered model of wealth classification was often found in livelihoods wealth ranking exercises (Ellis and Freeman 2004). In Setiu, perceptions of wealth is linked to their past experiences and future aspirations, and although there are similarities, poverty emerges as a contested status independent of the three wealth categories discovered by Firth.

Refusing poverty

Firth (1975) had noted that among Malay fishers, to be *sesak* (suffocating) was the most common way to describe a poor man. In Setiu, incidence of poverty is reported to be among the highest in the country A close analysis of the

[74] Kelantan is a Malaysian state located North of Terengganu.

research data however suggests that for the Setiu small-scale fishers' households, though being *sesak* is often used to describe hardships, it does not make them *orang miskin*, literally translated to mean 'poor people'. None of the households surveyed was identified as a poor household, and participants did not consider the other households to be poor either:

> Jarina: Are there poor people in the village?
> Husband : Actually it's hard to find really poor people now
> Wife: Let's put it this way, being poor is to live in a house with thatch nypa roof, bamboo wall... but you look at the houses in this village, they all have TV sets.
> (Interview at household 1AAM on 23 July 2008).

Some even vehemently rejected the poor status:

> Pok W (Husband): Well, we fishermen could not become rich from fishing (...). So they say "this fellow is considered poor". But I don't think I'm poor. I may not have but I am not poor. Don't mention that I am a poor man. I may have a tough life but poor I am not.
> (Interview at household 1APW on 21 May 2009).

During these interviews, the question on their wealth status was asked in the contemporary Setiu context, and it was generally felt that the participating households considered themselves to be better off materially than before. For many participants (representing 48% of surveyed households), although they may not be poor now, they had been in the past. This experience of having *been* poor influences the way they self evaluate their current wealth status.

More specifically, participants tended to speak about poverty as linked to an era existing prior to their relocation to Gong Batu and Rhu Sepuluh:

> Pok S: Walking to school (in the old village), which was located quite far, like from here until Penarik Baru. I used to just walk all that distance, no bicycle, not even on proper road. But I didn't finish, as I would sometimes go, and sometimes wouldn't. It's because my late father was a poor man and had many children. He only went fishing... Life was so hard. Sometimes I didn't even have money to bring to school. Just rice that my mom packed for me. It was a hard life indeed back then, because there were so many of us children but there was only my father who went fishing. That's why I always tell my children about how hard a life I had to endure. I had to eat things that people wouldn't think of eating now. Children today would have good life from the moment they open their eyes. Electricity, a proper house... we didn't have electricity then, and lived in homes made of thatched nypa roofs, palm floors and bamboo walls. How hard life was. So nowadays, when people complain that things are expensive, I'd say that although that is so, people still have more things now.
>
> (Interview at household 2BPS on 18 September 2008)

The period of time immediately following their resettlement was also identified with a time of poverty:

> Mek A (Wife): You know, in the beginning (at the new village), we were so, so poor. And there was no one to help, either mother or sisters because they were all poor too.

PR2 (Husband): Our home was just like a barn, which structure was tied to a guava tree!

Mek A (Wife): That was where we cooked, ate and slept. Like a barn! With a rope, we attached one end to the guava tree, so that it would not collapse. You open the door and there you see the stove, and a pillow next to it. So small, was the house!

(Interview at household 1BPR2 on 18 May 2009)

For the newly relocated population of Gong Batu, they were not able to go fishing anymore. The different geographical set up of the new village from the old had caused technical difficulty to the fishers because the fishing boats that they were using in Kuala Setiu were more suitable to be moored on the beach (due to its location off the beach), and could not be easily anchored into the lagoon, nearer to where Gong Batu was located. And even if they had wanted to bring their boats to be berthed closer to where Gong Batu was located, i.e on the opposite (western bank) side of the Setiu lagoon, there was not a fishing jetty available either. Nor was there easy access to the sea with their Payang and Lichung boats had there been one then. Therefore, local marine capture fishing had to be abandoned. The new settlers had to instead earn their living by fishing away[75] or doing work that was available on land:

Pok Y: [The time] When we first arrived here was the hardest time. We can't work at sea so we work on land, looking for *Kerechut*[76] grass to be weaved into mats. You know how much it was back then? Probably RM25 per 100 mats. So my wife would weave while I go look for the grass. How hard it was to raise children then. Nowadays, it's not that

[75] Many fishers went to fish away from Setiu, especially by joining commercial purse seine or trawl net operations that were being introduced in the region.

[76] A grassy local wetland plant which leaves are used as weaving material.

> hard to raise children anymore. If you don't have much, the government will provide assistance. But not back then. We already had our independence then, in 1964, 67. The first few years here was very tough indeed. We barely had enough back then but now, we are much better off, as our children have all grown up and don't burden us anymore (...).
>
> (Interview at household 1BPY on 12 May 2009)

In both of these accounts, certain materials and conditions were used to identify poverty: type of house and lack of family support (vulnerability). But as Pok Ya suggests, the movement to new settlements also intersected with new opportunities to receive support from government agencies, a point that I will return to later in this chapter.

Poor access to education and hardship in raising children were also the conditions of poverty suffered during these critical periods, but have improved since their resettlement:

> Pok U (Husband): There're so many facilities now. It used to be hard in those days. People say that even in Kuala Baru, only the children of folks with money could go to school. Otherwise, you can't go to school because the cost was so high... It was really hard back then. Not like now. Nowadays, even if you can't work for a week or two, you can still hold on. But back then it was really hard. Now, Alhamdulillah[77], we can afford to have a good life and send our children to school. Even if we can't work, we can still afford to buy rice. It's not that tough anymore.
>
> (Interview at household 2APU on 19 Nov 2008)

[77] Meaning "All praise is due to Allah"

For research participants, being poor is to suffer true hardship, which they had experienced in the past. However because they no longer face such hardships and enjoy a better life today, poverty is a category that no longer applied to them. To be more precise, the fact that they did 'have' albeit little, what poor people do not, was the disqualifying factor for being classified in the poor status:

> Pok W: (But) we would have food to eat. If people said that they don't even have enough for food, then they can borrow ten or twenty ringgit (RM). Of course people will give (them). (...) Poor? How so when they have a house, a place for shelter. If you're poor, then you would be living in the streets, like those people in foreign countries sleeping on the pavement. If people said that we were poor, I would get angry. In this village, there are no poor people. Poor people are those who are in true hardship. Call anyone you like. I am ready to answer to them. A poor man is one who is without a spouse, without children, live on his own on the streets. That is really a poor person.
>
> (Interview at household 1APW, 21 May 2009)

The explanation alludes to a poverty threshold that is set by two conditions: the ability to fulfil basic livelihoods needs such as food and shelter, and the fulfilment of other needs through ownership of livelihood capitals. It suggests that the fulfilment of both conditions renders them capable to make a living, which in turn frees them from the 'true hardship' of the poor. Instead of being poor, the Setiu fisher-folks see themselves belonging to a set of wealth categories as discussed in the next subsections.

The wealth categories of Setiu small-scale fishers' households

The label of poverty is rejected by the Setiu fisher-folks involved in the research, who instead see their communities divided into three categories of wealth, namely i) *orang susoh* (people who live in difficulty and have a little); ii) *orang buleh* (people who 'could' and have enough); and finally iii) *orang senang* (people who live in ease and have more than enough). These wealth categorisations are sophisticatedly defined, using criteria that are relational to the levels of needs that a household is perceived to fulfil. Although assets level and the capital outlook of each category are also discussed, material assets, as the following discussion clarifies, are not the most salient factor of differentiation between these three categories. Indeed, Setiu fisher-folks used wider criteria than materialistic wealth to evaluate their wealth status. The subtlety of material differences between households is the focus of my discussion in the following subsections.

'Orang susoh, orang tak dok': people who live in hardship, people who have not

The first wealth category which Setiu fisher-folks might place themselves in is *orang susoh*[78] which literally means 'people living in hardship'. A quarter (25%) of the total households surveyed described their livelihood status today as such: six in Rhu Sepuluh and five in Gong Batu. Although these *orang susoh* households may not be poor, they do not seem to have more than what they need:

> Pok NS (Husband): Still, I would say that we may not be well-off but we are not doing too bad either. To say that we don't have at all would

78 The standard Malay spelling would be *susah*. The spelling used as it is said in the local Terengganu speak.

be untrue. We have, just not much. So I have to keep on working. How else can we make it? (...).

(Interview at household 2APNS, 7 November 2008)

Thus, for those who perceive themselves as *orang susoh*, living in hardship means only having what one needs to make ends meet, such as: food, shelter and being able to provide for the family's other basic needs such as children's education, but not more. Furthermore, these families have to struggle hard to make their living:

Mok D: We are people in hardship. We do whatever work that is available. We look for firewood or collect mangrove wood for the charcoal kiln or whatever is available. Like right now, I'm dressing these anchovies for someone. They asked me if I could do it and I told them to send it over. But it's true, folks here always say "You two never seem to stop working". How could we, when we need to make a living?"

(Household 1EAD, 10 May 2009)

The other significant characteristic that these households have in common was their claim to have little, if any, savings. Income is spent almost exclusively on daily subsistence, such food and basic expenses as mentioned earlier:

Jarina: Do you manage to save some?

Kak E: Not at all! Not even five sen[79] a month, I tell you truthfully. Just from fishing, we can't.

Pok H: Let me tell you, without any embarrassment, that yesterday I made only RM40. Took RM20 to buy fuel and the other RM20 to buy a bag of rice. I tell you honestly, it's not possible.

Kak E: Just a bag of rice.

(Interview at household 2APH on 19 October 2008)

For this reason, one fisher uses a Malay proverb *kais pagi, makan pagi* – literally means "scratch in the morning, eat in the morning" to describe his household's livelihood situation. There is a sense of frustration over financial insecurity, and in not being able to extend their resources further than to meet their immediate needs. Only when they had extra income, such as the profit made during the prawn season or 'out of the blue' incomes earned, could they buy other things such as furniture or choose to eat out:

Pok L: Nowadays, if we have food on the table, it's good already, praise the Lord. This set of settees; we bought it from the money we earned during the recent wind-sailing competition. They [the event organisers] rented my boat. They rented everyone's. All ten [boats]. They paid almost RM800 for each. So, people asked me what I was planning to buy with the money and I said "Nothing. I'm just going to buy a set of settees as a souvenir".

Kak A: Ah money! When we have it, it doesn't get us anywhere.

(Interview at household 2BPL2, 1 Nov 2008)

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[79] One Malaysian ringgit is equal to a hundred Malaysian sen

Five houses in the villages are made in concrete and only one of these belongs to a fisher household. The other houses in the villages are made of wood or a mix of wood and concrete. For this reason, there is not much that would distinguish the houses of the *orang susoh* from those of more affluent categories. However, in the households of *orang susoh,* the frustration of not being able to improve existing assets is often expressed. For example, they could never afford to build a concrete house as would a better-off family or own more land than they currently have. At an elderly couple's home, when his sister-in-law opened the back door and let a nice, cool breeze enter into the house, the husband forlornly said:

> Pok NS: There was a time when I thought of building a concrete house instead but knowing that I make my living as a fisher, I decided to forget about it.
>
> Mok NS: It's different for those folks in Kelantan. They have land. So, they could always sell some of their land to get cash to build a concrete house. But like us, all we have are these two acres. If we sell another acre, we'd only have an acre left. We have no farm land either.
>
> Pok NS: We do have a plot but that's only for farming, which could only be used to plant crops on it. We don't own it and can't use it for anything else, except let our children farm the land if they so wish.
>
> (Interview at household 2APNS, 7 Nov 2008)

In the above interview, the sense of vulnerability is displayed while discussing what it's like to be an *orang susoh* household. These families may not be poor, but they have a hard life nonetheless because they have to work hard to fulfil no more than what they need, which consist of food and shelter for the family as well as education for the children. Most Malaysian children

begin schooling between the ages of four to six in public or private-run pre-schools. However, compulsory formal education begins only at Year One in primary schools, in the year a child turns seven years old. After six years in primary education, a student moves on to secondary education, entering Form One. At the end of Form Five, students will sit for the Sijil Pelajaran Malaysia (SPM, equivalent to the O-Level examination in British Schools). They could then progress to non-compulsory tertiary education in colleges, universities, technical institutes or polytechnics. Although all participating households, regardless of wealth categories considered the period when they had school-going children to be the toughest moment in their family life, *orang susoh* households are most vulnerable during this period:

> Ayah D: (Being) People in hardship, we did any work that was available on land. I used to work at the sawmill during the day and go down to the river after that. Just to feed make ends meet. Those were hard times, when had four children in secondary school. One of our children once complained to me saying that I smelled like mud. How could I not, for working that way?
> (Interview at household 1EPD on 10 May 2009)

The ten *orang susoh* families all had children or grandchildren[80] who were still schooling at primary or secondary levels while two families had children studying at tertiary level. These families claimed that even if they managed to make any savings, they will be used to cover the children's education needs. The burden is heavier as they progress in their education, because without ready cash, they often have trouble paying the tuition fees, at least until their children are offered student loans or scholarships. So, as long

[80] Who are raised as their own

as they still had children in school, these households had to continue working. Elderly fishers for example could not retire even if they wanted to. In the case of one household, the father is still fishing today despite being more than seventy years of age and suffering from asthma because his two youngest children are still studying:

> Pok L: (In Kuantan) I was just a crew. While I was working there, the income was usually not bad but we had so many children who were schooling that even if I brought back RM1000, it was hardly enough. They were staying away at boarding schools so whenever they came back, we had to give them some pocket money. We couldn't give them a lot too, just when we make a bit more.
>
> Jarina: Did you manage to save?
>
> Mok T: We had to!
>
> Pok L1: There was a time when we had to raise a lot of money to send our children to further their studies. Who would give us the money otherwise?
>
> Mok T: Two of our children went to continue their studies after secondary school, one at a nursing college and the other one to the university... If it weren't for those two, we would not be working anymore, especially the youngest one who is studying at the university. But his brothers have been helping out because we two can't really make it on our own. They send him money.
>
> (Interview at household 1BPL on 5 May 2009)

The vulnerability felt by these *orang susoh* households also seems to be linked to their perception of the precarious nature of fishing. They liken this activity to "looking for things lost" because it is difficult to tell where one can

find fish in the sea, and a fishing trip can be ruined by many things: from natural elements such as bad weather to material conditions such as an engine breakdown. They feel vulnerable because despite all these, it is an activity that they have to rely on for their livelihood:

> Pok NS: Working at sea will get you nowhere. It's not that you can't earn anything. You can, but just enough to feed your family (note that his wife said exactly the same thing at the same time). Once you stop working, you go bankrupt. The Chinese would call it "gone bankrupt". If you don't go out, nothing comes in. Even when you work, there is no guarantee in your earnings. Sometimes you make RM100. The next day you get nothing. So you borrow RM50 for the following day's trip. You make RM50. But that money, you will have to pay for the previous day's debt. So you need to borrow again to go out the next day. So how can we make it?
>
> (Interview at household 2APNS on 7 November 2008)

Of the ten households, six are involved in line fishing; three in gillnetting while one fishes for *Tamban*. Fishing is operated using their own boat, except N who follows his father-in-law and Pok W2 who uses his son's boat. Like all fishers, they need their fishing equipments to always be in good working order to be able to fish. But without savings, the *orang susoh* fishers do not have the ability to invest in upgrading or to get any faulty equipment repaired or replaced immediately. Pok A, whom I notice to always have difficulty launching his boat when the line fishers set out early in the morning, expressed this predicament:

> Pok A: So I still use this old boat. But I have no choice because I still have to work (fish). Some people say to me "Are you not afraid that your boat will 'die' at sea?". I say "What choice do I have? I have to go out". If I succumb to my fear, I'd never go out.
>
> (Interview at household 1APA on 19 November 2008)

So without working equipment, they cannot fish. And if they do not fish, their livelihood is threatened. To reduce this vulnerability, the households of the *orang susoh* diversify their livelihood activities (see Table 2). In Rhu Sepuluh, one household is involved in tobacco farming, which another has also been doing until recently. In fact, both these households do not consider fishing as their main livelihood option. For Pok W2, his household only depended on his gillnet fishing during the tobacco growing periods when no income is generated while to N, fishing is no more than a backup option since he and his wife stopped growing tobacco a season ago. He explained that he is not made for fishing and would prefer to work at a building material factory when there's an opportunity.

Meanwhile, three households in this category earn monthly wages for part-time work at a government sponsored aquaculture programme[81]. For these households, their income portfolio consists of more than one alternative source, especially as their wives are also income earners for the family. The role of women as income earner is particularly important in one household where the husband does not do any other work besides line fishing due to

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[81] This is a poverty eradication-related scheme developed by the Fisheries Department to create alternative income for small-scale fishers households in Rhu Sepuluh. By working part-time as an "aquaculture project participant" at the nearby Fisheries Department-owned plant, they earn a monthly wage. See later section on claiming a living for further discussion on the scheme.

health problems; to earn some side income to make ends meet, his wife does odd-jobs such as cleaning fish:

> Mok E: (...) When people asked me to process fish, I go process fish. If people asked to dry the anchovies, I'd dry the anchovies. You can ask him. Because he can't work too hard. Until now, I keep on working, always. Whatever work people ask me to do, I'd do it. I'm not fussy.

Table 3 Livelihood activities among *Orang Susoh* households

Site	Household codes	LV activity 1	LV activity 2	LV activity 3	LV activity 4	LV activity 5
RHU SEPULUH	2APNS	SSF	Tailor			
	2AN	OTHER	SSF	Food producer and seller	Waitress	Tailor
	2APH	SSF	Odd jobs			
	2APAZ	SSF	Fish plant part-timer			
	2BPL	SSF	Fish plant part-timer	Transport provider		
	2BPW	Tobacco farmer	SSF			
GONG BATU	1BPY	SSF	Carpenter			
	1BPL	SSF	Odd jobs			
	1AJ	SSF	River product seller			
	1EPD	SSF	General worker	Fish farmer	Odd jobs	
	1AKT	SSF	Producer and seller of fish-based products (w)			

LV: Livelihood activity; SSF: Small-Scale Fisher

That's how we get where we are now. If I didn't work, hey... The only days when I don't work is when I'm really sick. When all my body aches and I can't even get up. This body that has been at work since young, non-stop.

(Interview at household 2APH on 19 October 2008)

In Gong Batu, the men from the *orang susoh* households usually are only full time fishers. Therefore, the role of women in livelihood-making - which I discuss in detail in a later section - is crucial in these households. They supplement their family's income through earnings from river gleaning, retail selling of products from the river or other homemade goods such as dried fish, or doing odd jobs. Through livelihood diversification, the vulnerability caused by the unpredictability of fishing returns is reduced through income earned from non-fishing activities. Thus, they are able to survive but not able to secure a life free of hardship. Otherwise, they would not be *orang susoh* but belong instead to the second category of wealth which I now discuss.

'Orang buleh': people who could

The second category of wealth among the Setiu fisherfolks is *orang buleh*[82], which literally means people who could. It is the category which most of the Setiu fisher-folks see themselves belonging to (62.5%). Those in this category are able to meet their basic needs and could afford to fulfil other livelihoods needs, thus freeing them from hardship:

Jarina: What's your opinion of the family's situation right now?

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[82] The standard Malay spelling would be 'boleh'. The spelling used is as it is spoken in Terengganu.

Pok S2: I think that we are not in difficulty. We have enough to eat and we can provide for our children if they wish to further study. Even if I only work in the kampong (instead of in Kuantan), it's not a problem. And I have more time for them.

(Interview at household 2BPS on 24 September 2008)

When comparing themselves to their fellow fisher-folks, the households of *orang buleh* saw themselves being in a middle category of wealth:

Kak Z: Let's put it this way, for me we have enough now and are thankful to Allah for this. But if we have more, we are thankful to Allah too [we would not mind]. Because to say that we are *susoh*, we aren't. To say that we are *senang*[83], we aren't either.

Abang M: When we feel we are *susoh*, there are those even more *susoh* than us. When we feel we are *senang*, there are those more *senang* than us.

(Interview at household 1AAM on 23 July 2008)

Overall, the *orang buleh* households do not consider that they are living in difficulty because unlike the *orang susah* households, they are able to secure savings. They have confidence in securing their livelihoods basic needs, which makes them less vulnerable than the former category:

Jarina: You are able to save then?

Pok S: Yes. So during the rainy season, when the children need money to start school, we have no problem. We are not in difficulty.

(Interview at household 2BPS2 on 24 September 2008)

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[83] See *Orang Senang* category of wealth in the next sub-section

However these savings exist very rarely in the form of bank deposits. The income surplus is kept within easy reach, for instance under the mattress or simply in the pocket when the amount is small or in the form of gold jewellery if it is significant. As the nearest bank is located some twenty-five kilometres away from their village; many cannot justify spending money on fuel just to access their money. In fact, most of the fishers only have a bank account opened because it was the only way to receive the special fishermen's allowance from the LKIM[84]. On the contrary, gold jewellery is the preferred saving method, which served well as an accessory or as a source for urgent cash, especially among women who as mentioned earlier manage the household expenses. Whenever they manage to save, they would buy pieces of gold jewellery, which are regarded as a better reserve option due to their liquidity; these gold trinkets do not depreciate much in value and could be pawned to get the required amount of cash and recovered once they have the money to claim it:

> Jarina: Have you ever been in such hardship that you had to borrow money from people, for example?
>
> Pok M.A: We have been in such situation but we would not borrow from people. We pawn our belongings instead.
>
> Mek A: That is our only resort. Like when our child first went to the teacher's college. She studied in Johor, you see. Also, we needed cash to buy fish. So we would pawn our jewelleries. But it's ok, it's our own belonging so we don't burden anyone else. When we have *rezeki,* (surplus) we go and claim it back. So we would not borrow from

[84] After a fuel price hike in 2008, the government had set up a monthly cash allowance for fishermen. For more details, please see later section 'Claiming a living.'

people. When we have *rezeki*, we buy a bit, even if it's just a small chain, for the sake of the future. We know that we have many children.

(Interview at household 1CMA on 28 May 2009)

All the seventeen line fishers, six gillnetters, one crab fisher and one *bubu* fisher from this category operate using their own boats. Unlike their colleagues among the *orang susoh*, these fishers can afford to better maintain and improve their fishing gears. With their savings, they have the opportunity to upgrade their fishing operations with equipment that improves their working condition or potentially increases their yield:

Pok S: Technology-wise, things are a lot more sophisticated now. Me, I would like to get a crane, to pull in the net. This is because when I go fishing, it's quite a chore to pull in the nets while standing. It's hard work. But with a crane, work would be less difficult. That's all I would like to have. My boat and engines are big enough already. I just need that to add (to my fishing equipment).

(Interview at household 2BPS on 18 September 2008)

There are, in spite of all the above, similarities between *orang buleh* households and *orang susoh* households: all *orang buleh* research participants doubted that fishing income alone could be relied on to improve their living conditions.

Mek Y: With his work as a fisherman, we have what to eat but to be well off, it would be difficult. But to have food on the table, that's guaranteed.

Pok M.O: That's how it is, life that depends on the sea.

(Interview at household 2BPS on 18 September 2008)

Therefore, they too diversify their livelihood strategies. But for them, livelihood diversification is a common characteristic which allows for saving (see Table 4). This distinguishes them from the *orang susoh* households that rely on their alternative incomes to help cover basic livelihood needs.

Table 4. Livelihood activities among *orang buleh* households

Site	Households	LV activity 1	LV activity 2	LV activity 3	LV activity 4
RHU SEPULUH	2APD	SSF	Fish plant part-timer	Fish seller	Freshwater fish farmer
	2AA	SSF	Fish plant part-timer	Tailor	
	2API	SSF	Fish plant part-timer		
	2APB	Tobacco farmer	SSF		
	2APU	Tobacco farmer	SSF		
	2BPS	Tobacco farmer	SSF		
	2BPMO	SSF	Food Catering		
	2APM	SSF			
	2BPSu	SSF	Fish plant part-timer	Farmer	Tailor
	2BPSM	SSF			
	2BPY	SSF	Baby-sitter		
	2AJ	SSF	Transport provider		
	2APLN	Gov servant	SSF	Gov servant	
	2APNG	Café	SSF		
GONG BATU	1APD	Fish farmer	SSF	Boat rental service provider	
	1APDS	Cafe	SSF	Boat rental service provider	
	1APC	SSF	Fish farmer		
	1APA	SSF			
	1APL	SSF	Fish farmer	Tailor	
	1AM	SSF	River gleaner	Pandan leaf weaver	
	1APW	SSF			
	1AMN	River gleaner	SSF	River product seller	
	1AAB	Fish farmer	Food catering	SSF	
	1CMA	SSF	River product seller	River fisher	

LV: Livelihood activity; SSF: Small-Scale Fisher

Cash crop planting especially tobacco is also another important source of income in Rhu Sepuluh. Both husband and wife and sometimes with the help of their children, would toil in their tobacco farms to ensure a good harvest. Involving four *orang buleh* households, this livelihood option improves their income portfolio and enables them to earn more cash:

> Pok U: (...) In 95, when I first joined the programme, I made RM10,000. I was just learning about it then. The second year, I was able to plant two cycles and made RM50,000. That's how I was able to buy the boat and what not. I paid RM10,000 to the bank and after taking out the cost still made quite a lot. So tobacco planting does make it possible to have a bit more. It has only been a bit bad in the past two years because the crop got infected. But I still managed to make RM16,000, although there were more dead crops than those that survived.
> (Interview at household 2BPS on 18 September 2008)

For these households, tobacco planting is the main livelihood activity. Because of the demanding nature of tobacco planting, the tobacco planting fishers are only able to fish between crop seasons or when they are not tending to their crops. For this reason, they do not have any other source of alternative income. But other *orang buleh* households in Rhu Sepuluh are able to have more than one. Four fishers that work at the aquaculture plant for example are able to further supplement their household income with other activities. With their wife's assistance, Pok D for example operates a fish stall and rears freshwater fish while Pok S2 plants melons and chillies. In addition, Pok S2's wife earns extra cash as a seamstress, as does the wife of Pok A. And although Pok J's wife only takes care of their young children (aged two and five

respectively), he is able to make extra cash by offering transport service with his van.

Four *orang buleh* households however depend exclusively on fishing. But, these households are those of elderly couples. Unlike the household of elderly fishers in the *orang susoh* category, these households fare better because they do not have a lot of expenses to cover, as their children have all grown up and no longer live with them. In addition, they are financially sound: two households in Gong Batu are financially assisted by grown-up children while the other two in Rhu Sepuluh have cash savings from the sale their land, which they claim to have enough to last them until their death. For these reasons the elderly fishers in this category go fishing more for pleasure than to earn an income:

> Pok W: At our age, we are never really well. We are what people say at the sunset age already. But if I'm well, I'd go fishing. I don't receive any assistance, which is fine with me, even if we don't get any assistance at all. We still have food to feed the family. Actually all those fishing equipment that my son uses, are mine. But he is now using them and so I consider myself his crew. I just go as I have the time and can't just be idle. (...) And now I don't need so much as we are both old and how much do old folks eat anyway? And we've raised all our children already. We hardly spend on anything. (...)
> (Interview at household 1APW on 21 May 2009)

Despite their diversified livelihood portfolios, these research participants maintain to be fishers. However, in reality for some of the *orang buleh* households in Rhu Sepuluh, fishing does not constitute the main income

source. In the case of Pok LN's household, both husband and wife are wage-earners: he works as a driver at the local public works office while his wife, Kak N is a general worker at the local school. For Pok NG's household, the couple's main livelihood activity seems to be running the local coffee shop owned by his wife. As for Pok M.O, he does not venture into any other activities than gillnetting because he is actually waiting for the commercial boat operations that he normally works for (as a Tekong) to get back into operation. Meanwhile, his wife makes a good income as a cake supplier to the local guesthouse run by the Fisherman Association.

In Gong Batu, fishing is still the main breadwinner for five of the nine *orang buleh* households but they are supplemented by other livelihood activities. Farming however is not an option for them due to the scarcity of farming land. Coupled with the poor soil condition in this area, planting activity was therefore limited to a few fruit trees in one's own compound:

> Pok DS: (...) Together in groups, (quite a few folks from Telaga Putat) applied for land further up to plant crops. But we here can't do the same as there's no land available here. All is already gone to plantations. No more land that is suitable for crop planting. It can't be the sandy area because it's hot. It has to be suitable soil for crops, like peat. It's not found everywhere and around here, it could be found only from Telaga Papan to Bukit Putera. The soil is soft, very suitable for crops. Like in Lembah Bidong. But here in our village, Haji Mail has taken them all. (...) The (two acre) land that we get will remain just that much and it's naturally poor in nutrients and so not at all suitable for planting anything. Even the coconut trees don't do very well here. Even if you put fertilizers, the soil won't retain it for long. So if we fishers

want to plant fruit trees like *rambutan* and what not, we can't. (...). Even if we planted them, they will not grow. Have you seen any vegetable grown around here? Not at all... The soil is not suitable...

(Interview at household 1APDS on 25 July 2008)

Although there is no cash crop farming project launched to create alternative income for the Gong Batu fisher-folks, they benefit from a fish-cage based aquaculture development in the Setiu lagoon (see Figure 21). This is due to Gong Batu's geographical advantage as the nearest located village to the deepest section of the Setiu lagoon, which is most suitable site for this type of aquaculture project.

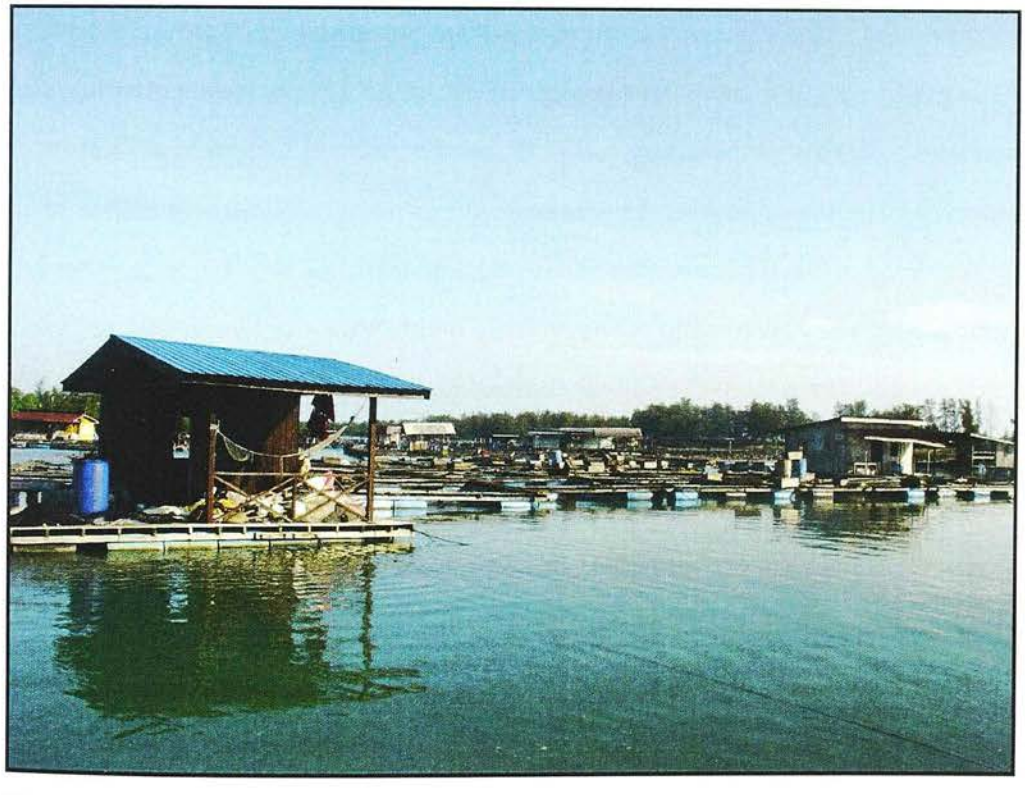

Figure 21. Cage farms in Setiu Lagoon, Gong Batu

The Setiu lagoon area off their village was one of the pioneer sites and has now become the biggest in the district. But it is a capital-intensive venture. Only those in the more affluent categories can afford to set up a fish-farming operation, thanks to their financial ability. This included six *orang buleh* households in the village. It is regarded as a secondary source of income for four of them, and as the main livelihood activity for the other two.

Two *orang susoh* households also participate in fish-farming but at a smaller scale, with only four and eight cages each. In comparison, fish-farmers among the *orang buleh* operate eleven to thirty cages. While very lucrative in the past, fish-farming is however no longer as profitable due to market and environmental changes:

> Abang M: (...) If I have any wealth at all, it's the fish (aquaculture business). We are just waiting to sell them. But we can't seem to at the moment. There's no market for it now (...).
>
> Jarina: Why so? Is it because there's no sale contact?
>
> Abang M: They're too big. The market wants those between 700 to 1,000 grams. But I have even those that are two, three kilogrammes!
>
> Jarina: How did this happen (excessive size)?
>
> Abang M: Because there used to be a market for big fish before. But not anymore it seems. (...) With the diseases, the crowdedness (there are more and more fish cages in the lagoon), the water (quality), the tide, the high water level during the monsoon. It's just not worth it anymore.
>
> Kak Z: The crowdedness is causing water (quality) problems. The fish feed (fish head) settles in the riverbed and contaminate the water. This brings diseases to the fish.

Abang M: But people don't know this. They just hear of RM10,000, RM20,000 worth of fish sale. But it's not the whole picture. But we know. (...) Many are now thinking of quitting the fish culture business. It used to be lucrative, with earning as much as RM10,000, RM 20,000 each sale, and we sold not once but a few times a year.

(Interview at household 1AAM on 23 July 2008)

Besides fish farming, one could get involved in river fishing and gleaning. These are other livelihood options in the Setiu lagoon area in which three *orang buleh* households actively engage in. Being an estuarine ecosystem, the lagoon teems with brackish water fish while its shallow parts are natural production grounds for bivalves such as clams and cockles (see image of a Gong Batu woman gleaning for cockles in Setiu Lagoon in Figure 22). Also the mangrove patches along the riverbanks are habitats for the high-priced mangrove crabs. The harvested river products are sold directly to customers or to sellers at roadside stalls set up along the main road (see Figure 23), and the returns from these activities have reportedly been very good:

Jarina: You go to fish in the river too, right? So how do you decide when to do so?

Kak J: On weekends usually.

Pok M: Well, let's say we don't manage to sell fish today (too little) and tomorrow is the weekend. So we'll be in the river.

Jarina: How has it been?

Pok M: For cockles? A lot, we've found a lot there in Fikri. We can easily get RM40 to 50 a day. Not even a day because we'd be home by three pm. Really a lot now. This year has been particularly good for cockles.

Kak J: Those who've been doing that (looking for cockles) have made RM1,000 and more a month. Those who don't go to sea and look for cockles instead, I mean. Going to sea would not bring in that much. (Interview at household 1AM on 5 May 2009)

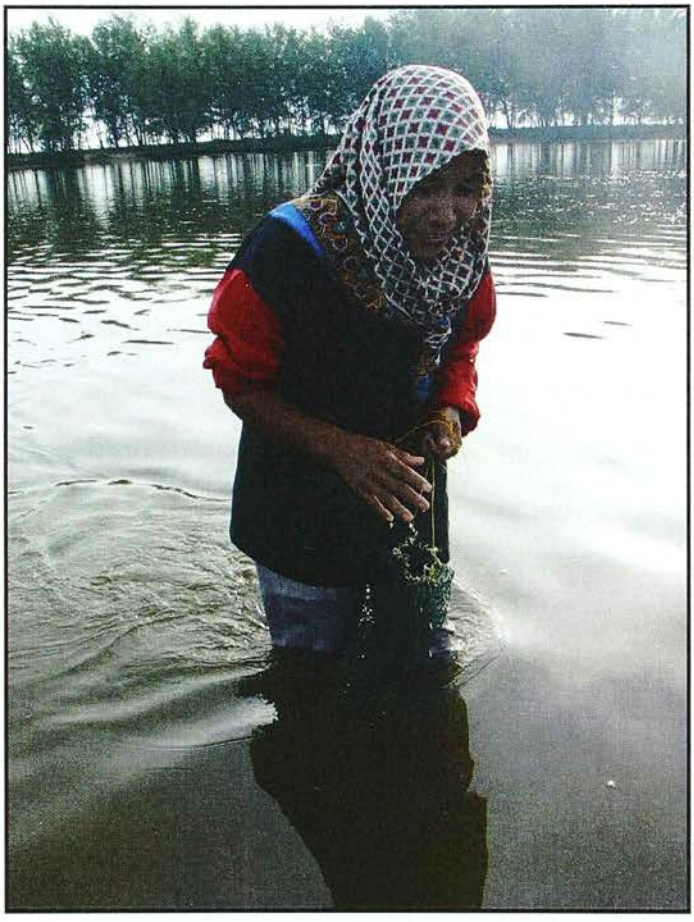

Figure 22. A woman from Gong Batu gleaning for cockles in Setiu Lagoon

If one is willing to work hard, these activities is a potentially profitable option because it requires a low equipment cost; gleaning is done using hands, sticks or a simple rake and a bucket while river fishing uses casting nets and

specially made traps are used to catch crab[85]. The use of a boat is also required but the fuel cost is minimal as the gleaning and fishing areas are not far from the jetty. For one *orang buleh* household, the river has become their main source of livelihood income. However, this activity does not involve those from the *orang susoh* households, except when they join those from the *orang buleh* households on their river gleaning and fishing trips. A couple from the *orang susoh* category that sell river products explained that they used to go gleaning for the clams and crabs themselves but had to stop since their children began schooling.

Figure 23. Setiu river products on sale at a road-side stall in Gong Batu.

[85] Crab catching is the most expensive river-based activity as the traps are bought ready made at RM per unit. However, because traps are left overnight in the mangrove, these traps are said to be prone to vandalism or theft. But mangrove crabs are a good product that fetches a high price in the market and do not perish quickly, which makes it a profitable.

Similar to Rhu Sepuluh, some *orang buleh* households in Gong Batu have more than one alternative livelihood activity. The households that do not depend primarily on fishing in fact have more diversified options. Supplemented by fishing and fish farming, running a café is Pok DS' household's main livelihood activity. He also provides boat services to tourists and university researchers, as does Ayah D whose household depends firstly on his fish farm and secondly on fishing. There is however only one household that depends on fishing has its income supplemented by earnings from tailoring as a third livelihood activity.

Unlike the *orang susoh,* the households of *orang buleh* have better financial security, enabled by savings that they put aside through their diversified livelihood portfolio. It gives them the opportunity to fulfil other than their basic needs and improve their living standards and working conditions if they chose to. It is this ability to do more than secure basic needs that differentiates the *orang buleh* from the *orang susoh* because the latter lacked this 'potentiality.' What the *orang susoh* could not, the *orang buleh* could. But still, they are not yet living 'in ease', as are those who I discuss in the following section.

'Orang senang, orang berada' : people who live an easy life and 'have'

The most affluent Setiu fisher-folks are not categorised as the rich, which would have been *orang kaya.* Instead, they are called *orang senang.* While the word *susoh* means in difficulty or hardship, *senang* means the opposite: at ease. These are the households of those who have, or the well-off. There were not many such households among Setiu fisher-folks: three in Gong Batu and two in Rhu Sepuluh. One of the main determining factors for this group is having the

appearance of wealth. This was made evident during one interview at a household of a part-time fisher in Gong Batu:

> Jarina: Referring to the three categories we created during the exercise we did the other day, how would you define the yellow (affluent) group?
>
> Abang M: It would be for those like Pokcik R1. When we look at him, we would assume that he has money because he has a big house...
>
> Kak Z: It would be based on what we can see.
>
> Abang M: We can say that it's based on that and if we don't see those things, there are other things like the size of their aquaculture business... having twenty to thirty cages could be considered rich. Like Pokcik R1, he has many cages. But all his wealth is there.
>
> Jarina: So, in Pokcik R1's case, you consider him rich because he has a big house or because he has many cages?
>
> Abang M: In his case, he is originally well-off. He used to be a *tekong* (head of fishing boat crew) in Kuantan. He's a famous one there.
>
> Kak Z: Just look at his wife. She may be old but she wears jewelleries. So they fall into the 'well-off' category.
>
> (Interview at household 1AAM on 23 July 2008)

Some material aspects, such as having a better type of housing and expensive cars, as well as the quantity of jewellery worn, are used by the Setiu fisher-folks to evaluate a household's wealth. But for the identification of the most affluent households among the Setiu fisher-folks, fishing-related criteria are given a particular mention:

Jarina: So, among those who go to sea, who is considered well-to-do, besides Pok R1?

Kak Z: Abang R2 (Pok R2), the one who has that green van. He goes to sea on his own and has various equipments like gillnets...

Abang M: And many other types, more than others because he has the capital to buy them. If we have twenty lengths, he has thirty. If his net is torn, he'd buy a new one (while others need to repair).

(Interview with 1AAM on 23 July 2008)

Like most (60%) of the households in the mid-category, four out of the five *orang senang* households attribute their main earning to their fishing activity. But they are no ordinary fishers; in Gong Batu, one household gained its wealth from the past earning as he was the *Tekong*[86] or head of a successful commercial purse seiners in Kuantan, while the other two were leaders in their respective fishing methods, namely gillnetting and *Tamban*[87] netting. As for the two *orang senang* households from Rhu Sepuluh, they owe their fortune to their large-scale *bubu* operations. The households of *orang senang* have surplus income, which they can save or spend or invest in capital-intensive fishing ventures.

When discussing these *orang senang* fishers, other fishers always referred to their quality as extraordinary fishers as a contributing factor to their wealth. These fishers are well regarded by their peers and were considered exemplary fishers because of their success in their chosen fishing operations. They are appreciated by their peers because they are knowledgeable, hard-

[86] Head of fishing crew

[87] A local fish species similar to pilchard

working and are 'good friends at sea'. For instance, Pok R2 from Gong Batu is highly esteemed by other gillnetters in Setiu:

> Pok Y: (...) This season, there's perhaps some who go gillnetting, like Pok R2. This man is a true fisher. Whether there's fish or not, he would go out to sea. And he's considered the 'front-man'. The others from there would stand-by and only go fishing when they hear that Pok R2 has got fish.
>
> Jarina: I have indeed been told by the folks there that he is a very successful fisher.
>
> Pok Y: In fact, we seek information from him too. Like today, we heard that he got a good catch on Thursday. So when Meli told me that Pok R2 is there near the coast, I went to see him.
>
> Jarina: He fishes here too?
>
> Pok Y: He fishes where we do. So, I pulled my nets up and approached him, asking whether there's fish. He told me there are, but not so much. So I laid my nets there and like he said, there's a bit but not much. He also left soon after that to look elsewhere. That's how it is. If there's fish or not, he'd tell us.
>
> (Interview at household 2BPY on 20 September 2008)

These *Orang Senang* fishers particularly emphasize their industriousness and even competitiveness:

> Jarina: So you're always ahead of people.

Pok R2: Yes, I always moved faster than others. And now, after using the 15hp[88], I upgraded to a 40hp engine. Others are using perhaps 30hp, I already use a 40 hp engine. I always want to be a bit better (equipped) than others.

Kak M: He has always been that way. When he hears that someone else got a bigger catch than him, he'd get very restless.

Pok R2: From young, I've been like that! I wouldn't be able to sleep, thinking about it!

Kak M: He is very competitive! Whenever he hears that someone has gotten more fish than him, he would not be able to sleep. He would sit awake at night, not able to sleep anymore.

Pok R2: She would know.

Kak M: I really dislike it when I hear that someone else has gotten a lot. He would then stay awake, do whatever but not sleep.

Pok R2: I would be waiting eagerly to go out fishing again, to do better than the fellow! I can't stand to be defeated.

(Interview at household 1BPR2 on 18 Mat 2008)

Because much respect is granted for one's extraordinary fishing qualities, one particular *orang senang*, Pok R1, is not given the same esteem as the others. His wealth was made in the past, when he was a successful *Tekong* in Kuantan. But now, he is just a line fisher who fishes occasionally, in addition to attending to his fish-farming operation that has become his main activity since retiring from commercial fishing. The other four however are active fishers who believe in making a good living from fisheries, and are all early adapters of new technologies, or adjusted quickly to new contexts and conditions in the industry:

---

[88] Engine horse power unit

Pok M.J: (...) Now there's still fish but you need to get the right technology to find them. (...). In conclusion, I think that we fishers have to change, to follow time. We can't just depend on subsidies only anymore. They keep saying that no one can be rich working at sea. Not true. That was in the past, in the days when fish was just a few cents a kilo. Now, fish... a bag full is already RM200.
(Interview at household 1CPMJ on 17 October 2008).

These *orang senang* fishers usually pave the way towards new technological upgrades in the local fishery sector, and seeing their success, the other fishers tend to follow. Moreover, despite their competitive spirit, they do not discourage involvement from other fishers in their respective fields. They do not seem threatened by the prospect of increased competition:

Jarina: Are there more people planning to start fishing for *Tamban* too?
Pok A.T: I hear that there are a few who have bought nets already.
Jarina: Will that affect your operations?
Pok A.T: No. It will be better if the *towkay* will buy the fish.
Jarina: Will it not create competition for the fish?
Pok A.T: Not at all. You can look for it everywhere. There in Dendong, there is plenty of fish and no one goes there. Many of the Beting Lintang folks have stopped fishing for it and have sold their net. They used to fish just to feed their fish. But it would not be worthwhile to fish just for fish feed. So it's not a problem if there's a few more boat joining in. And the *Tamban* behavior is as such that once one boat has caught them in its net, others need not move from there.
(Interview at household 1EAT on 28 May 2009)

One of them in particular, Pok M.J was very keen in encouraging his fellow fishers to venture into his technique of fishing (*bubu* fishing) or to diversify their fishing by targeting different species. But often, these calls are met with resistance, which frustrates him:

> Pok M.J: If you line fish and don't want to do anything but that, then you can only have enough for food. But you will not have anything (savings) for your later years. You won't have the opportunity for that! (...) But if you only line fish, (sighs)... The fault is with our own people. So reluctant to leave that piece of fishhook. As for gillnetting, it's actually seasonal (occasional). You can only get a lot once a week. Sometimes once a month. I'm talking about a big catch. Not just RM70 to RM80. But why do they refuse to change?
> (Interview at household 1CPMJ on 17 October 2008).

However fishers from the other wealth categories often related to me that even if they had wanted to change gears or adopt different fishing techniques, they did not have the capital required to do so, unlike the *orang senang* who have large savings. It is therefore not the willingness or the desire to innovate that makes the difference, but the financial ability to do so:

> Jarina: Are you not interested in *bubu* fishing?
> Pok N.S: I can't raise the capital for that. It would cost at least RM1,000 to start up. So we need to borrow from *towkay* at least RM400 or RM500 but the *towkay* would have to consider our situation too. We would need to look for a wealthy *towkay*. Look at Mat Jaga. He makes RM40,000 a year and RM18,000 goes to the bank. I have not a sen in my

> bank account! That's to show that we would not be able to recover our cost in time. Furthermore, we don't know how to make the *bubu* ourselves. So we'll have to pay people to do them for us. That adds further to the cost. The wage is RM50 per unit, you know! So we need to spend on the materials and wage to make them. So, if you buy one ready-made at RM60, that's considered very cheap already. So, if you want ten units, you'll need RM600. How can I ever make RM600 per outing?
>
> (Interview at household 1APD on 6 May 2009)

In fact, Firth's (1975) suggestion that the modernisation of the fishing operations that began in the East Coast since Malaysia's independence would favour the rise of a capitalist-entrepreneur fishermen class does seem to apply here in these two communities. These more affluent fishers are able to acquire more, new or better equipment to improve or expand their fishing operations, thus staying always ahead of the others. Pok R2 and a fellow *orang senang* fisher, Pok A.T have indeed become fisher-entrepreneurs. They have expanded their fishing operations through employment of other fishers in Gong Batu, to whom they provide a fishing boat or fishing gear or both. Pok R2 owns three boats and four nets that are operated by three *awaks* while Pok A.T owns two boats, three *tamban* nets and five *awaks*. As for Pok M.J and Pok Mi, their *bubu* fishing operations, which are operated individually, are much more extensive than the *bubu* fishers from the other categories; they use up to sixty fish cages annually while the others hardly own a dozen.

Unlike the household in the other categories who either have no savings or have some that they keep at home, these affluent households keep theirs in the bank. This is because the income generated from their fishing activities

alone are too much to be kept at home. Pok M.J and Pok Mi from Rhu Sepuluh for example claim to have made about RM37,000 and RM42,000 respectively in the current fishing year while Pok A.T makes more than RM1,000 a week during the fishing season. Pok R2 for example who has recently paid a large deposit to buy a new vehicle under his wife's name did not disclose how much he has in the bank but alluded that there is enough saved for his family to live in ease and without worry. But it doesn't mean that these households are not involved in non-fishery types of livelihood activities (see Table 4). Like the households from the other categories, they too have a diversified livelihood. Although Pok Mi's household now depends exclusively on his bubu fishing, his wife used to work at a nearby chilli sauce factory but has stopped to provide 'ground' support for his fishing operation[89].

Table 5 Livelihood activities among *orang senang* households

Site	Households	LV activity 1	LV activity 2	LV activity 3
RHU SEPULUH	2CPMJ	SSF	Kindergarten teacher	
	2CPMi	SSF		
GONG BATU	1BPR2	SSF	Grocery shopowner/keeper	Cattle raiser
	1APR1	Fish-farmer	SSF	
	1EAT	SSF	Quranic teacher	

LV: Livelihood activity; SSF: Small-Scale Fisher

[89] Mek H (Pok Mi's wife) helps him set off his boat in the morning and picks him up when he returns from fishing (see discussion on the significance of her contribution in Chapter V)

Although they may now be living at relative ease, all of these affluent fishers had begun the same way as the others had. They are at the same level of education as the other fishers, although Pok Mi claims to be better educated than the others; thanks to his schooling in Bangladesh before coming to Malaysia. He also has better exposure, having worked in different fields prior to settling down in Setiu. So does Pok MJ who used to work as a security officer at a local bank before he was retrenched and begun fishing full time. But they, in many ways, still considered themselves not much different than the other fishers. Like those in the other categories, they too claim to be poor when it seemed beneficial to do so, as discussed in the following section.

Claiming a living through the 'official poor' status

The earlier sections argue that Setiu fisher-folks did not consider themselves poor. Instead, they saw themselves either as people that live in hardship, those who have enough or those living at ease. However, what follows is a discussion on the instances when Setiu fisher-folks claim to be classified under the poverty bracket regardless of their self-proclaimed wealth statuses. These instances correspond to claims for benefits from programmes that are available for what I term as the 'official poor.' This category refers to those that are defined as poor or hardcore poor according to the official poverty criteria discussed at the beginning of the chapter.

In a paper presented by an officer of the Economic Planning Unit (EPU) of the Prime Minister's Department in September 2005, the incidence of poverty was reported to have significantly reduced to 0.7%. This success was attributed to the implementation of specific programmes such as the *Program Pembangunan Rakyat Termiskin* (PPRT) or Development Programme for the Hardcore Poor that was introduced during the National Development Plan

(NDP). The PPRT was further consolidated under the *Skim Pembangunan Kesejahteraan Rakyat* (SPKR) or Development Scheme for Citizen Wellbeing since the National Vision Plan (NVP).

With strategies on human resources development and quality of life improvements, the PPRT and SPKR programmes are largely grant-oriented schemes that aim to provide the necessary assets, such as housing and equipment for the poor households (Mahmud, unpublished Masters thesis). The budget allocated for their implementation is channelled from the Federal Treasury to various agencies to carry out different poverty eradication initiatives that target the poor, and provide project packages that are tailored to meet their specific needs. In 1989, at the launch of the PPRT, a register on the profile of these groups was established. Potential beneficiaries are officially entered in under the corresponding targeted groups of poor or hardcore poor, as per the PLI definition.

Under the SPKR programme that was launched in 1990, a thirty-two-page "Head of Household and Poor Household Profile Registry" form was made available by the Ministry of Rural and Regional Development's Poverty Eradication Unit for the identification of programme beneficiaries. Information on these households was compiled in a national level poverty database called the *e-Kasih.* Although the registration process were usually carried out by the officers of the respective implementing agencies, the task of selecting the programme beneficiaries is often delegated to the grass-root level authorities. As such, the selection of recipients for poverty eradication programme under the LKIM such as fishing equipments (boat, engine and nets) was carried out by the local Fishermen Association while the Village Welfare and Safety Committee that was headed by the village head who chose

the recipients for the other programmes, except for the education-related aides that were channelled through the local schools. In the 2007 report prepared by the JKKK of Gong Batu, 170 adults were identified as poor under the PPRT categorisation, including small-scale fisher households. With an emphasis on improving the quality of life of the poorest households in the country by increasing their economic productivity, the SPKR programme was mainly implemented through directly subsidised benefits in order to provide the targeted poor and hardcore poor households with the necessary 'livelihoods hardware' such as equipment and infrastructure for improved economic activities, and social wellbeing that would help them generate better income. These different types of poverty eradication related benefits are discussed below.

Fisheries related benefits

The most popular aid programme among small-scale fishers in Malaysia is the provision of subsidised fishing equipment. In Setiu, almost every fisher interviewed has benefited from basic fishing equipment subsidies of such as boats, engines and fishing nets, and the few who have not yet benefited from such programmes continue to claim it. This basic fishing equipment subsidy package (providing boat, engine and fishing nets) was introduced in the East Coast region in 1956 with the objective of improving the livelihood of fisher-folks though the mechanisation of their operations[90] (Ishak and Chang 1993). The scheme was initially set up as a partial financial subsidy where the fishers were supposed to repay half of the total equipment cost. However, only 2% of the recipients did repay by 1961 (Ishak and Chang 1993) but such schemes

[90] Small-scale fishers in the east coast of Peninsular Malaysia such as Kelantan and Terengganu were the first to benefit from such programmes in the country.

carried on until it eventually became a grant scheme in the 1970s as part of the government's agenda to develop the fisheries sector.

By early 1980s, the Malaysian fisheries sector was considered one of the most heavily subsidized in the world (World Bank 1983 in Ishak and Chang 1993). The equipment related subsidies by then were not targeting poor fishers, but were instead available to all fishers regardless of income, with the interest of further developing the fishing industry. Ishak and Chang (1993) argued that while "the credit and subsidy schemes had considerably aided the artisanal fishermen, especially in the east coast, in improving their lot (...)" (1993: 49), the authors agreed with the mentioned World Bank's report that the local fishing industry was being underdeveloped by such schemes because they had resulted in "a large number of East Coast fishermen [who] cannot survive without these concessionary schemes". In 1985, the government put a halt to the scheme, only to reinstate it in 1990s under the SPKR scheme. It is indeed the most sought after benefit among Setiu small-scale fisher-folks:

> Jarina: Why doesn't Pok W have his own boat?
> PW's mother in-law: He never asked for any.
> MPW: Actually he did. But now he is tired of asking. Two, three years of form filling but we don't get anything while others do. We wonder where we went wrong".
> (Interview at household 2BPW on 4 November 2008)

This programme is particularly popular among small-scale fishers because owning a boat allowed them to fish on their own instead of being a paid crew on a commercial fishing boat. Being an independent fisher potentially meant a better income for the fisher, and for those who have been

fishing away under commercial fleets, the opportunity created made it worth returning home to fish locally. But some recipients continue to fish away and only fish locally during the prawn season. During the non-prawn season, the subsidised equipment is either used by other fishers, usually a member of the family or a friend (as is the case for Pok We) or left upturned on the beach or under the owner's house until he returns to use them for prawn fishing during the monsoon season. However, there are fraudulent benefactors of this subsidised equipment, who reportedly never used them or have sold them off because the recipients are not real fishers:

> Pok I: (...) In the past, even old folks went to work for the purse seine net operations. What else could they have done when they didn't have their own boat? But now, each person has a boat, among those who go to sea (fishers). Even those who don't get boats! Then many of them sold their boats off.
>
> Mek P.I: Some of them had never once used their boats.
>
> (Interview at household 2API on 22 Oct 2008)

While there were those like Pok W who has never once received a subsidy of the basic package, some others have been provided with auxiliary fishing equipment packages as Geographical Positioning System (GPS) units and Side-Scan Sonars (though only recently and to a 'lucky' few). Unfortunately, the instructions for these high-tech tools are in English and the user support training that was provided by the benefactor agency when the equipment was distributed was insufficient, resulting in many people selling them rather than putting them to use:

> Pok D: I was also given a GPS unit but I don't use it. I've sold it off, because I don't know how to use it. They gave us just an hour demonstration and everything is in English. How can we understand? They just came to Penarik to show us how to use it, for about an hour only. That was just last year and quite a number of fishers were given the unit. But now, if there're still those who haven't sold it yet, it's probably just a few. I sold mine for RM500.
>
> (Interview at household 2APD on 18 Nov 2008)

It is apparent that distribution of the fishing equipment subsidies is rather uneven: In Gong Batu, only four of the eighteen fishers interviewed received both free boat and engine while one fisher received an outboard engine. In Rhu Sepuluh however, more fishers benefited from the subsidy scheme. Of the twenty-two fishers interviewed, nine received both equipments and three other received outboard engines. Those who have not received any such subsidies have therefore had to resort to buying these equipments on their own, or use the equipment of others as mentioned earlier. Other fishers, meanwhile, have been receiving the package continuously, including upgrades, or have received a replacement when the subsidized equipment was lost or stolen. Many fishers attributed the unevenness of the subsidy distribution to access factors, which I discuss in the next chapter.

Interestingly, those who have managed to acquire the necessary fishing equipment on their own do not renounce (what they consider to be) their *right* to the subsidies. They continue to claim it, and this includes those among the *orang senang* such as Pok R2:

Jarina: After you received that 2hp engine subsidy, were you given any other assistance?

Pok R2: Not anymore.

Jarina: Not even a boat?

Pok R2: Not at all.

Kak M: They did promise though.

Pok R2: They promised but they never did give.

Jarina: But you have your fisherman's ID card and fuel card?

Pok R2: Yes.

Kak M: They keep promising but when it happens (boat subsidies are granted), the village committee would normally not take down his name. There's news that there are boats to be given out but... [she sighs]

(Interview at 1BPR2 on 18 may 2009)

In addition to increasing the productivity of fishers through technological improvement of fishing equipment and infrastructure, the government has also introduced programmes that strategically aimed to create alternative income for poor fisher-folks. One popular and highly demanded programme is the aquaculture project. Beneficiaries could either receive assistance in setting-up self-owned and run fish farms, or could seek waged employment The aquaculture sector has been extensively developed since the 1980's in order to help increase fisheries productivity while reducing the fishing pressure (and overexploitation) of an already depleting coastal fishery resource.

As mentioned in an earlier section, two types of aquaculture projects were developed in the two studied sites to suit their different geographical

settings. In Gong Batu, where the Setiu river system forms into a large estuarine lagoon, cage-based fish farms were established in mid-1980s to rear high value estuarine species such sea bass and groupers. Initially local fishers were only involved as wage-paid workers by the Fisheries Departments. Then, the employment based aquaculture assistance was replaced with aquaculture project subsidies in the form of fish-farm infrastructure, and fish stock that were offered to individuals to begin their own fish farms. All the pioneer fish farmers claim that without this start-up package, they would not have been able to start such enterprise. However, when the venture became profitable in the early 2000s, it attracted many others to join the fish farming venture without any assistance from the government, except for the occasional provision of free fish feed and subsidised fry (fish stock) from various agro-based government agencies. But these subsidy packages are a far cry from the earlier heavily subsidised start-up ones. And since the past few years, the aquaculture industry in Gong Batu has been 'in crisis', causing some to blame the failure on the delivery of government's aid to the poor. A fisher who claimed that he had no better choice than to sell his fish farm recently complained:

> Pok D.S: (...) They give us fish fry at the subsidized rate of RM1.60 a kg. So we still have to come up with the capital to pay for the fish fry. So we take a bank loan. But what happens when we can't pay our mortgage? Whenever we need cash, we have to sell the fish that we have. If we had bought 2,000 fry, we will then sell 500 of it to get some cash. And we can't sell to the folks that are poor like us but to richer folks. So who gains in the end? Those who are well-off again!
>
> (Interview at household 1APDS on 10 May 2008)

In Rhu Sepuluh, on-land, tank-based aquaculture was introduced instead for prawn and fish aquaculture. This is because the village is located further upstream of the Setiu River system. Here, the Penarik River flows by but this tributary to the Setiu River is not suitable for fish-cage farming due to its physical characteristics[91]. But unlike the self-owned and run fish farms in Gong Batu, the aquaculture facilities in Rhu Sepuluh are still operated by the LKIM and the Fisheries Department that had set them up. The prawn farm has already ceased its operation when the research was carried out. At the same time the fish farm that is currently run by a State-owned company has a number of small-scale fishers under its employment. Participants explained that the facility was set up to specifically help improve the income of small-scale fishers by creating these positions for them:

> Pok A: (...) But the plant job is a new thing. Prior to this, we didn't do it that way. It began with just ten people, initiated by the Fisheries department to help increase the income of fishers. They set up the same thing elsewhere before and had faced problems running the plants. Hence they subcontracted the project to TIDC. The idea was to help fishermen do aquaculture project with products they could harvest after four years. But it didn't work because they didn't have people to run the plant all the time. I heard that they have allocated RM50,000 for each fisher. But they could not give that lump sum to us. So, they create this aquaculture project instead.
>
> (Interview at household 2APA on 19 November 2008)

[91] The Penarik River is shallow and of low salinity. For estuarine fish-cage farming, the water has to be saline and deep.

At the plant, local fishers from Rhu Sepuluh area are employed as a *peserta* or a *pekerja*, meaning a participant and a worker respectively. The former is a part-time staff, working only three-and-a-half days a week in average while the latter works full time. The wages differ significantly with a *peserta* earning only RM500 a month while a *pekerja* earns between RM800 to RM1,000 a month. Almost every one among the *pekerja* used to be a fisher who stopped fishing to take the full time employment. The small-scale fishers involved in the research who work at the plant however opt for the part-time option as it allows them to fish when they are not working at the plant. These workers value this part-time employment as earned income makes an important contribution to their household, especially during the low fishing seasons between the months of July and August as well as November and December. It is nonetheless still considered a supplementary income because, for this group, fishing remained their first choice occupation:

> Jarina: So your family now depends more on your fishing income or your land-based wage?
>
> Pok D: On both, some from the sea and some from land. From the land, it's only the job at the fish plant, but it is more important because it's a fixed income that we make every month. But if they told me not to go fishing again, I would not agree to that, not with the RM500 salary a month that they give. It's not enough, if we can't do any other work. If I had to choose between working at the plant and fishing for my full time employment, I'd choose fishing, if we had to choose only one.
>
> (Interview at household 2APD on 18 November 2008)

Infrastructural benefits

As mentioned earlier, the Setiu fisher-folks have also benefited from housing and land ownership programmes for the poor. The most recent large-size resettlement was in mid-1990s when the lasts of former Kuala Setiu villagers were relocated to Pandan Jaya, an annex village to Rhu Sepuluh where each household was given a plot of land. These relocation related land allocation programmes had allowed many fisher-folks to become land owners for the first time. Recently there was a new opening for land grant in Gong Batu[92]. But such programmes are not likely be replicated in the future as land become scarcer. For this reason, those who sold their state-granted plots of land are often frowned upon:

> Pok L: (People living in) That part got two acres.
>
> Kak A: Until the madrasah area, after that, it's all one acre only. But many are vacant land because the owners don't live here. Just like the piece in front of us, the owner had passed away and so the land was sold off.
>
> Pok L: It's also due to their own foolishness. They have land, they sell it. Then, they have nowhere to go to. If they ask for another piece, they wouldn't get anymore.
>
> Kak A: It's ok for those who already have (other) land.
>
> Pok L: It's about those who don't. We Malays mustn't be too stupid. Don't be too anxious to sell. The land in front was sold for only RM3,000!
>
> (Interview at household 2BPL on 1 November 2008)

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[92] The new land opening was exceptionally granted because of a few factors: a) there was still a large area of State-owned land available b) the land had little economic potential (unsuitable for farming) c) the village had a low population density due to its remoteness.

In recent years, a new type of benefit has been introduced to replace land ownership schemes. With funding from both the federal and state governments, housing projects specifically for the poor had been launched. Targeting the poor land-less households, building contracts were granted to developers to build homes (according to a given specification on selected government owned land sites) for identified beneficiaries. For those who own a plot of land but are unable to build, they could apply under the same scheme to have the same type of house built for them. Those already with a house and land could apply for a grant to repair their home. In the case study villages, a few households have benefited from this scheme. But like the boat and engine scheme, this programme is said to have turned people to have a 'subsidy mentality'.

Cash benefits

Although the main thrust of the poverty eradication programmes in Malaysia is the creation of more income related opportunities for the poor, provision of equipment, infrastructure and employment are not the only strategies adopted by the government. Besides livelihood hardwares (for economic opportunity creations), various types of cash benefits are given through the Welfare Department. For example, a monthly cash benefit is given to poor households under the 'General Aid' allocation scheme. The allocation amount varies between states and, at RM450, the amount received by Terengganu poor households is the highest in the country (Ministry of Women, Family and Community Development 2010). Similar schemes are available for children from these households (General Aid beneficiaries) as well as for the elderly, the disabled and single parents. A State-related type of cash and in kind benefit

for the poor also exists in the form of *Zakat*[93] distribution. *Zakat* is a tithe that is paid by eligible Muslims[94] to provide for the most vulnerable groups of society. The former is categorised into eight groups of *Zakat* recipients or *Asnaf* and the categories of *fakir* and *miskin are* two groups which correspond to the poor and hard-core poor respectively. In this rural area, these monthly or one-off cash benefits make a significant difference for the recipients' households:

> Kak Z: His family used to be very poor. His mother was so poor last time but now she's better off because her children are on their own. With her welfare money of RM300 a month, she lives comfortably alone. When Abang Mar's cousin asks for a small amount like a thousand, to borrow, we would go to her.
>
> (Interview at household 1AAM on 23 July 2008)

The eligibility of those who receive these cash benefits is however contentious. On the Zakat distribution in Gong Baru which benefited more than a hundred people in 2007 for example, an elderly fisher strongly protested:

> Pok W: A poor man is one who is without a spouse, without children, and lives on his own on the streets. That is really a poor person and

[93] Malaysia is a secular state where Islam is the official religion. As their fellow non-Muslim Malaysians, Muslims in Malaysia are subject to the civil tax legislations such as the Income Tax. Although not compulsory by civil law, *Zakah* or tithe is an officially recognised tax-deductible contribution which could be paid formally through the respective State Islamic Affairs agency which is then responsible in its distribution to the beneficiaries. In Terengganu, *Zakah* is paid directly in cash to MAIDAM, the state religious body, which then decide on the form and value to be distributed to the recipients. But the recipients of the *Zakat*, which is handed out in cash or in kind (food supply or basic clothing or provision for basic but critical house repairs and improvements) is usually identified by the village committees.

[94] A Muslim is deemed to be payable to *zakah* contribution if his annual wealth (income or assets value) surpasses a designated threshold level.

therefore deserves to be given *Zakat* contribution. If folks like us receive *Zakat* while we have money in the bank already, how can we eat that *(Zakat)* money? I am not an educated man and I never properly learned all these but I have read a verse in the *Quran* and the *hadith*. So people say this one's poor, and that one's poor. But they have a house and a proper bed. Poor people would be living on the streets. Those are the ones that God say deserves to receive (the *Zakat*). (...) But some folks have some wealth but when people give them *Zakat*, they still accept. Those people are actually supposed to contribute to *Zakat*, not receive any.

(Interview with 1APW on 21 May 2009)

There are also questions raised regarding the criteria used to evaluate the recipients' eligibility:

Jarina: Are those who are considered well-off in this village (in majority) involved in business?

Kak Z: Not necessarily. Actually, we can't be really sure. Some we know, like A, who we are sure to be well-off. But others, we can't say. Like Rani, his father was very rich and left a lot for him. But he gets welfare assistance although he doesn't seem to be poor, with a big house and a car.

Jarina: Is it because he is a disabled person?

Abang M: Not really, but we really can't say.

Kak Z: If he's disabled, how could he drive his car (rented by people) all the way to Terengganu?

(Interview at household 1AAM on 23 July 2008)

Providing for children's schooling is one of the basic needs that is prioritised in households of Setiu fisher-folks. For this reason, another much acclaimed and contested benefit is the one-off school-related financial assistance, and the selection of beneficiaries of this education-related assistance is another much debated issue in the villages. Given in the form of cash benefit and school fees waiver at the beginning of the schooling year to facilitate entry into the school year for children of poor households, many non-recipient households claimed that they are confused by the criteria used to determine eligibility of households. Some even go further into criticizing the weaknesses of the selection process which fails to identify "the really deserving" recipients. Having a car for example is criticized as an inappropriate disqualifying factor for this category of benefit, especially when it is used primarily to earn extra income than for family use:

> Jarina: So, people here consider those with motor vehicles to be well-off?
>
> Pok Lang: Yes, they say that if you have a van, you're well-off.
>
> Mek P.L: Actually, in the past when only two of our children went to school, they got some assistance. But now, the third one doesn't get anything. The other students do however get it. Yes, they don't have proper transportation to school except for an old motorbike but perhaps when it came to food at their table, it may be more luxurious [than ours]. That's why we say "we have no luxury. We just have a van".
>
> (Interview at household 2BPL on 1 November 2008)

The cash benefit described above is particularly appreciated by these fisher-folks because schools in Malaysia open at the end of the year which coincides with the peak monsoon period, during which fishing income is least secure. A

family could receive more than RM1,000 in total, depending on the number of school going children. However, the monetary aid that is meant for purchase of schooling materials for the benefiting child, such as uniform or books, is reportedly prone to misuse by the parents:

> Abang M: Just consider the grant given for children's education. It's supposed to be for the children's school needs. But parents use it to buy hand-phones. So the money is used for other things. This is because they think that money is easy to come by. But for us, the money should be spent for their children's education as it's meant for.
> (Interview at household 1XAM on 23 July 2008)

'Women only' benefits

In addition to the benefits mentioned above, there are also poverty eradication programmes in Malaysia to assist women in rural and poor areas. For instance, the innovative KEMAS rural nursery facilities are implemented under the Ministry of Rural Development's PPRT programme, and create an opportunity for the rural women to get involved in income generating activities by the provision of child care. Training and infrastructure for cottage industries such as sewing, and small-scale food product manufacturing as well as pandan weaving are also offered through this scheme. In the recent years, the pandan weaving activity, which is carried out in Gong Batu but not in Rhu Sepuluh, is given additional support by the Ministry of Culture and Tourism (see image of women at the weaving workshop Figure 24). The former not only provides teaching support through a weaving workshop but also a RM500 monthly allowance to programme participants.

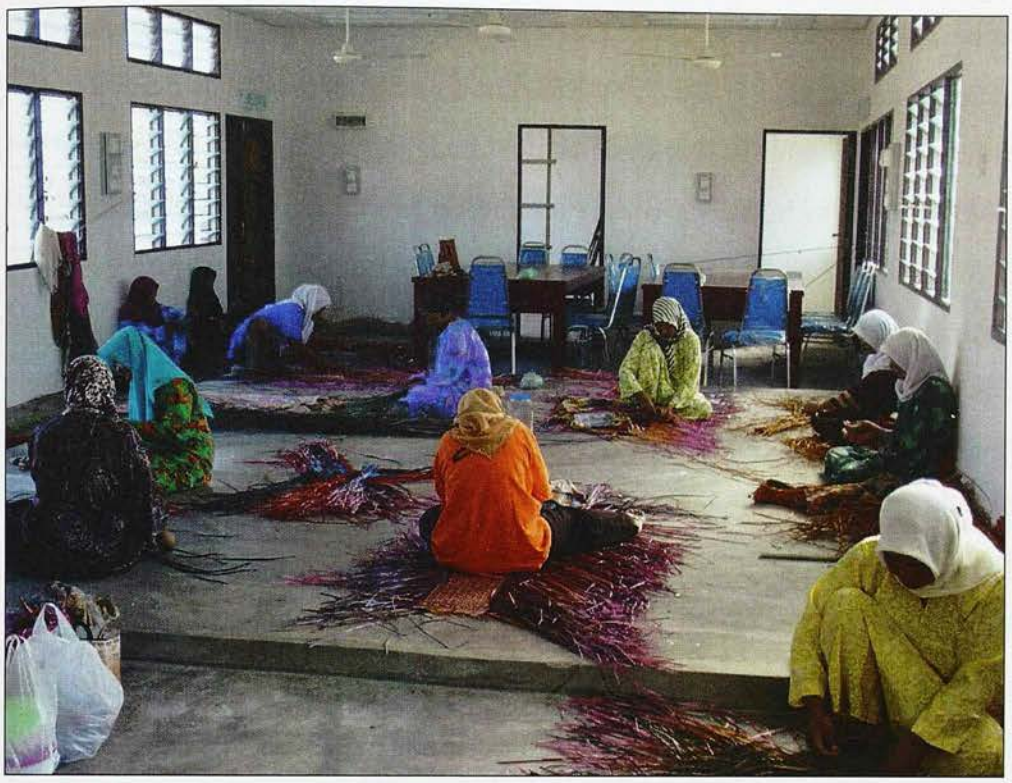

Figure 24. Gong Batu women at pandan weaving workshop

This cash incentive made the programme very popular among the women in the village, who would apparently join the programme merely to obtain the monthly allowance. Once the weaving workshop is over, almost all participants will cease to weave although the State Handicraft Agency has guaranteed to purchase any weaving that they produce after the workshop. Only four participants who admit that it is the new learning opportunities provided through the workshop that motivated them to join the workshop in the first place, continue to weave on their own.

Jarina: Do you still weave?

Kak J: Yes. But not at the workshop anymore. It's not fun being there all alone. So I do it at home now. The money is not as important to me as the training that I could get from the weaving programme. It's great

to be able to learn new techniques and designs. Normally, if we are taught a new design, it would take me just a month to master it. So in a year, I could master twelve designs. Just imagine, being able to choose which design to make! Of course the money is important too but I'm here to mainly learn. It's unfortunate that most of the others just go because of the training allowance and once that one's stopped, they don't go to the workshop anymore.

(Interview at household 1AM on 5 May 2009)

There is also the Amanah Ikhtiar Malaysia (AIM), a micro-credit scheme for women that is run by a government-funded independent organisation that specifically targets poor rural households. This scheme operates as a financing facility for the poor (like Gramin Bank) and does not offer direct cash or in kind subsidies unlike the other programmes mentioned earlier.

Figure 24. Women at an Amanah Ikhtiar weekly meeting in Gong Batu

Subsidies for the poor are benefits for all?

The poverty eradication programmes mentioned above are those that are most popular among Setiu households. They are either free or heavily subsidised. For this very reason, the 'official poor' status is inevitably welcomed among Setiu fisher-folks because the assistance is considered to be important tools to fulfil their livelihoods needs. Whether they are *orang susoh, orang buleh* or *orang senang,* every Setiu fisher-folk household considers itself eligible to some if not all the poverty-related subsidies mentioned above. Even Pok W who most vehemently refuses to be called a poor man, admits that although he would not apply for welfare benefit (for the elderly) himself, he would not refuse it either if it was offered to him. It is interesting also to note that while there are disagreements about the criteria of eligibility for cash benefits, the claim made by the more affluent groups to other benefits, especially those that were fisheries related are not held in contempt by their less affluent peers.

These juxtapositions or contradictory behaviours seem to be linked to their perception of the needs that are specifically met by the different subsidies, which in turn, is closely tied to the livelihood needs and fulfilment criteria that they use for wealth status identification. The *Zakat* contribution, for example, is only meant for a specific group of recipients, as explained earlier. Those who do not fall into the eight categories of *Zakat* recipients rightfully should not accept it. As such, Pok W refuses to receive any *Zakat* because he does not feel that he or any of his fellow villagers belongs to these categories. However, being an old man without a stable income, he finds it acceptable for him to receive any cash benefits given by the Welfare Department, which, in his opinion, is meant for such individuals.

Another case in point which shows the differentiation of what is deemed acceptable and what is not: the cash benefit given to children from 'poor' households, created to help to meet a basic livelihood need for supporting children's education without which households of the *orang susoh* will not be able to fulfil, it is considered unacceptable that such assistance gets awarded to the non-deserving or is not used to meet the specified basic need it is meant to. On the contrary, fisheries related equipment subsidies are not meeting basic livelihood needs but is meant to help make a living in the fisheries sector. Therefore, anyone who uses such equipment to make a living deserves to claim them. This is especially so when the possession of these equipment that defines who they are as a fisher. Hence, using a small fibreglass made boat and an outboard engine makes both Pok R2 of the *orang senang* category or Pok D of the *orang susoh* small-scale fishers. Thus, when fishers from even the least affluent categories sell the received equipments for cash instead of using them to fish it is scorned upon. Similarly, Scott (1985) found displeasure in the paddy farming community of Sedaka with a particularly poor man because he was considered a dishonest poor who did not genuinely try to improve his family's livelihood. Their reasoning therefore is morally embedded, where what matters most is having a genuine need to fulfil and making genuine efforts to fulfil it. Furthermore, although the *orang buleh* and *orang senang* were better off, if compared to the *orang susoh,* they were still not yet rich. The material disparity between the least and the most affluent categories are in fact not enough to create striking differences between them. The affluent among them live and work like the rest of them do. If they were rich, they would be full-fledge *Towkays*, capitalists who only employ *awaks* to run their fishing operations. For these reasons, they too are qualified for assistance from the poverty reduction programmes.

Conclusion

The findings discussed in this chapter provide important insights into the small-scale fishers' perceptions of their current livelihood status, thus providing answers to one of main research questions. In this chapter, besides the official poverty narrative, a very different scenario of which poverty and wealth statuses are accorded by the Setiu fisher-folks is uncovered. Instead of a purely materialistic view, theirs is flexible and subjective: one is as poor as his or her inability to fulfil his or her basic needs and retrospectively, one is as well-off as his or her ability to fulfil beyond them. Their criteria are centred on one's capability, and align with Sen's (1999) perspective on development, which considers poverty as capability inadequacy. In so much as the fulfilment of these needs, either basic or more indulgent, is the main objective of one's livelihood, as well as a benchmark for one's wealth status. There are no qualms in the fact that while they do not regard themselves poor but to be either in difficulty, in sufficiency or in ease; they all deserve to come under the 'officially poor' label. This is because the benefits that the latter status entailed increase their capability to meet the said objective.

There seems to be a general polarisation of wealth status based on the intensity of fishing operations of the research participants (see Figure 25). In the first place, those who are involved in line fishing could at best aspire to be in the *orang buleh* category. Their households therefore practise livelihood diversification to supplement fishing incomes. This confirms the findings of Al-Harran et al (1994) study on a fishing community in North Terengganu, which claim that a large majority of fishers felt that they could not improve their living standards through fishing alone.

Livelihood diversification in fact is widely practised by households in all categories of wealth. But in the case of the less affluent, government

agencies play an important role in creating alternative incomes for them. While these programmes initially began in the 1980s with intention of moving coastal fishers away from the fishery sector through the creation of land-based livelihood activities, there are now programmes that allow them to continue fishing and at the same time earn a side income in aquaculture, for instance. According to Allison and Ellis (2001), such schemes should be encouraged, as they raise the chances for fisher-folks to top up their income in alternative livelihood sources. This in turn reduces the strain on coastal marine resources. Such enterprises are indeed very popular among fishers who do not have other livelihood options. Unfortunately they may not be sustainable for there are major risks on these projects' long-term viability. A good example is the cage fish-farmers in Gong Batu. They risk succumbing to heavy debts trying to continue their operations in environments that are in deterioration. Likewise, the participants of the Rhu Sepuluh fish plant may lose their monthly wage if the facility closes down. Furthermore, tobacco farming which has been a significant income earning activity for those involved, may also cease to be an option due to the increasing planting costs. In comparison, households which are currently diversifying their incomes in non-government-backed-livelihood activities such as retailing their marine products or with secure wage incomes and remittances, are better positioned in to succeed in household accumulation[95].

With the exception of line fishing, all the other types of fishing guarantee a high return when carried out exclusively and intensively. Those who venture in such an operation, especially *bubu* fishing, are the highest income earners among the participating fishers. Nonetheless, when it comes to

[95] Accumulation is defined as "the ability of certain individuals, households or groups to acquire extra resources that enable them to raise themselves above their fellows on a basis that can be reproduced and transferred to the next generation" (Crehan, 1992: 122).

the question of how well one is able to meet the objective of making a living to fulfil one's needs, household income alone does not provide an answer, nor does it properly fix the wealth status that a household sees itself belonging to. Otherwise, Pok M.A who openly admitted to earn as much as the two *orang senang* cage fishers would consider himself to be one too, instead of an *orang buleh.* But his household accumulation is more restricted compared to the other two due to different vulnerability profile that it has if compared to the households of the other two. There are factors which have enabled the *orang Senang* 'to have' what the *orang buleh* 'could have', and the *orang susoh,* 'due to their hardship in life, could not' or vice versa, factors that hampers the *orang susoh* from 'the possibility of having' what the *orang buleh* 'could have', which the *orang senang* 'already do have'. These considerations are in fact livelihood liabilities and assets that must next be explored to fully understand the livelihood making of Setiu fisher-folks. Concerning user-artificial reefs relations, these findings suggest that:

- If artificial reefs development is to meet its objective in poverty eradication among coastal fishing communities, the complexity and "contestedness" of poverty and wealth must first be understood.

- While artificial reefs are in general considered a useful tool in making a fisheries-based living, their success in meeting the needs of the targeted (socio-economic) groups depends on how well they fulfil their specific livelihood needs

Finally, I would gladly attest that adopting the use of livelihood trajectories as suggested by de Haan and Zoomer (2005) has been effective in exposing the temporal aspect of the Setiu fisher-folks' wealth status evaluation.

The category that a household occupies is based on its lived livelihoods experiences. The accounts on wealth status are always told in relation to the position that one's household is perceived to be in today, as compared to where it was before. It would be interesting to now see whether such an approach would be as illuminating when considerations on livelihood liabilities and assets of the Setiu fisher-folks are made in the next chapters.

Chapter V

Human capitals – starter kit for making a living in Setiu

"People pursue a range of livelihoods outcomes by drawing on a range of assets to pursue a variety of activities" (Farrington et al 2004: 191). According to Ellis (2000:31), assets are "the basic building blocks upon which households are able to undertake productions, engage in labour markets, and participate in reciprocal exchanges with other households". They consist of various capitals that positively affect a household's capability in its livelihood making, which are used in different ways and served in different functions. In discussing the assets of Setiu fisher-folks, the factors that contribute towards their livelihood making and wealth differentiation are closely examined. These factors are embedded in the various livelihood assets that households dispose of in making their living.

This chapter is the first of two which explores the livelihood assets of Setiu fisherfolks, highlighting the capitals that "enable them to use and defend assets ever more effectively" (Bebbington 1999:2029). It discusses their human capital, which usually refers to the conventional view of human resources, or the health, education and skills possessed by individuals. In livelihood studies, human capital often refers to the provision of labour for livelihoods activities or income diversification opportunities for households. As one of several capitals available, it consists of elements that give value to the productive quality of the human agent (Ellis 2000). Because a livelihood is made not only to fulfill one's material needs, but also to give meaning to living (Bebbington 1999), elements of human capital are also those that strengthen

people's capabilities (Sen 1999) and contribute towards individual or household well-being that might be more difficult to measure or quantify. In their paper on the application of Sustainable Livelihood Framework on small-scale fisheries, Allison and Horemans (2006:758) listed people's capabilities "in terms of their health, labour, education, knowledge and skills". These elements of human capital are particularly important to research participants in Setiu at several different phases of livelihood construction: to start up their livelihood making quantitatively and qualitatively; to compensate for other resources that they lack; and to get ahead in livelihood making.

The above-mentioned four elements of human capitals, namely labour, health and fitness, education, and skill and knowledge, that enable the Setiu fisher-folk to not only make, but also to improve their living are the focus of this chapter. The following sections expose the ways these most readily accessible livelihood capitals contribute towards vulnerability reduction and household accumulation of the studied population, and the ways these elements add value to their productive capacity and their capabilities as fishers (Sen 1999).

Labour: a readily available capital that increases value when put to use

Labour becomes a livelihood capital when put to use by individuals or households to contribute towards livelihood making. Found to be one of the key assets for rural families by a research on rural livelihoods in four African countries (Ellis and Freeman 2004), it is also a capital that is more willingly put to use by the Setiu fisherfolks that are involved in the research than any other asset they own. In fact, an attitude of hard labour has always been a highly regarded virtue among fisherfolks in the Malaysian East Coast (Firth 1975) due

to the labour-intensive nature of fishery. This unwritten rule is surfaced in how wages are accorded: young apprentice fishers are given a lower wage than a regular crew member until he has shown his worth, which means to be able to work as diligently as the others:

> Pok D: I actually started fishing in my teens, when we were still living in Kuala Baru. I lived in Besut for a while, since I was in Standard two until two years after I finished primary school. We then returned here and at that time Pok Loh Awang was working with *baring* net. So I began to fish with him. I was paid only a third of a normal crew's share then because I was still a child. If the others were paid RM100, I would only get RM35. Only after I worked for them for more than a year was I given the same wage as the others. At that time, the *baring* prawn had to be unloaded from the boat manually by the crew and it was heavy. So, only when I was strong enough to carry the *baring* prawn that I was given full adult wage.
>
> (Interview at household 2APD on 18 November 2008)

In his study on paddy farmers in the Malaysian state of Kedah, Scott (1985) had noted that in Malay communities, being resourceful, which refers to the ability to capitalize on the resources that one has, is a quality that is more well regarded than being materially rich. Farmers who are conscientious are considered to fall into the description of resourcefulness because hard work, an effort put to this end by intensifying the use of labour give rise to assumedly the most readily available capital that farmer households have. Hence, among Setiu fisherfolks, a fisher who is known to be industrious is never looked down by the others and instead earns a good reputation.

Pok Mi, who is from Bangladesh and has few social connections in the village, is an excellent example. In the past, his family suffered humiliation when they were chased away by his wife's relatives from the house they had built on his wife's ancestral land in Penarik. He does not receive any subsidy as a fisher because he is not able to acquire a Permanent Resident status despite being married for more than twenty years to a local. He even claims that some people purposely excluded him from every day life because he was not considered local enough. But these challenges, he relates to me, had always been a motivation for him to work even harder and to be more resourceful than other people: when he first arrived in Setiu, he worked for a purse seine boat as well as being a book-keeper and purse seiner light setter to earn extra income. Later when he decided to start fishing on his own, he bought an old wooden boat that another fisher had discarded due to its poor condition. He proceeded to repair the dilapidated boat and was able to successfully fish with it until he had enough money saved to buy a better one. As a result, he is now well respected by his fellow villagers for his perseverance and incredible efforts at building and improving life for himself and his family. As Pok MJ puts it, "everybody agrees that no one can work as hard as Pok Mi".

Pok Mi has demonstrated that using mainly his own labour, the capital that is readily at his disposal is a positive action that expresses one's outlook of the future. The villagers recognise this quality as key in making a difference in livelihood making, especially among the less affluent. As Kak Z argues, while some families have a better start at securing their livelihood because they had parents who could help them financially, others like hers can only rely on their own effort:

Jarina: So, what about those that do not come from wealthy families, such as your family? What factor helps you most in making a living?

Kak Z: In my opinion, it is our own effort, and our own thriftiness because our parents do not have much, as they live in hardship.

(Interview at household 1AAM on 23 July 2008).

Labour-effort: the added value labour capital

Both labour and perceived effort are important for Setiu fisherfolks. Thus hardworking people like Pok Mi are respected by his fellow villagers because of what they do with their labour capital. Households of participating fishers in Setiu consider this to be a readily available resource with which one can make a living. These individuals add value to it through their conscious effort to use it to a specific end. This value-added human capital becomes a labour effort that is held in such high regard that it could even be used to 'own', albeit temporarily, specific parts of the sea that is otherwise regarded as an open access resource[96]. While there are disputes among fishers over the introduction of fishing zones by the Fisheries Department that created virtual borders for different types of fishing operations (see Chapter III for further detail), there is a strong consensus that *unjang* is an acceptable practice as it is deemed as an appropriate reward for hard work[97]:

Jarina: I remember how furious Awang was once, complaining that someone else had fished at your unjang. Please tell me why.

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[96] Fishers in the region has always adhered to the concept of *Mare Liberum.*

[97] Preparing and setting up an unjang is a labour intensive chore, which is described in detail in chapter two.

P.I's wife: Must be at those *unjang* that you make yourself.

P.I: You mean the unjang for red snappers?

P.I's wife: They are made with coconut fronds. Some people do fish from other people's unjang...

P.I: I'd go line fishing at those *unjang* too. But I could only go twice a week. Some people, when they know that I won't be fishing that day, would go fish there instead. So when I actually go there, there'd be no fish, as people had already fished there.

Jarina: So, at *unjangs*, people would get angry if other fishers fished there?

Both: Yes! Definitely.

P.I's wife: Because we make the *unjang* ourselves.

P.I: It's our own hard work.

P.I's wife: We had to look for this and that to make it.

(Interview at household 2API on 22 Oct 2008)

Through their effort in setting up *unjangs*, Setiu fishers are able to create valuable natural capital for themselves because according to the local fishing practice, *unjangs* locations become their owners' exclusive fishing ground. However, as discussed in Chapter I, other fishers could sometimes be permitted access to an *unjang* by the owner, who is normally compensated with the allocation of *kepala unjang*, which can be quite significant when a large catch is made at the *unjang*. An opportunity to gain a good income from this usufruct practice is also possible as the same rule is reportedly applied to artificial reefs sites that were created by LKIM with the help of local fishers during the earlier period of artificial reefs development in the 1980s. Indeed, older artificial reefs sites in Setiu are named after the leader of the group of

fishers[98] that were involved in their deployment, who do consider themselves as artificial reefs 'owners'. But there are issues with the practice, which is accepted by some, and contested by others because claims of ownership of artificial reefs sites are not as straightforward as those of *unjang* locations, which will be discussed in detail in Chapter VI. During an interview with the state LKIM officer, I was told that fishers are purposely not invited to be involved in artificial reefs deployment activities anymore to avoid claim-making to artificial reefs, thus ensuring open access of newly created artificial reefs sites to all fishers.

For households that lack other forms of capital, labour effort is often the main resource that enables them to secure their livelihoods. Through hard work, Setiu households believe they are able to make up for the lack of other livelihood capitals especially financial capital. However to their detriment, they frequently neglect to take into account the labour cost when evaluating the profitability of their financial returns. Take for instance where they would rather put in the extra hours in the name of saving money, notwithstanding the fact that the labour cost would end up costing more than what they perceived they have saved. Pok DCM's words demonstrate this situation well:

> Pok DCM: (...) We look for the *Kerapu* stock ourselves, for free. So if they die, we could have lost only our sweat and physical effort.
> (Interview at 1APDCM on 6 May 2009)

[98] Each deployment activity reportedly involved a group of 10 to 20 fishers.

Pok DCM spends long hours looking for grouper fry in the estuary to restock his fish cage, instead of buying it from the supplier. He explains that it is all right for him to get tired, as long as there is money to be saved. Instead of investing a little money for grouper fry, he spends hours looking for them himself. Similarly, Pok J and his wife who would actually rather glean the river for cockles, clams and crabs that they sell at their road-side stall. But because they now have young children who could be left at home alone, they have to purchase these products from others instead. This increases their operational cost and is considered a loss of opportunity to make more profit.

In both examples it is clear that maximising labour effort to minimize on money spent, is seen as one way of being resourceful. This seems to suggest that they do not place monetary value on their own labour but instead append a high moral value on labour effort. It follows that they do seem to recognise the value of other people's labour, perhaps because the financial value in wages that is associated to its acquisition. Therefore those who are perceived to be not making full use of their own labour are considered lazy, and are not well respected. This criticism is accorded to fishers who return earlier than others, those who fish closer to the shore instead of going further, or those who do not make or mend their fishing nets. Furthermore, with the various assistance provided by the state to improve socio-economic conditions in the area, it is generally agreed that a poor household has only its own (adult) members' tardiness to blame:

> Pok R2: I think life is easier for people today. The government helps them a lot. If they are poor, it's because they are lazy. Believe me. If they work hard, they would not go hungry. Sometimes people would

> say that it's easy for me to say because I have a good life. But no! I used to be poor too. The folks now are not as poor as I was then. Even our house was just tied to a guava tree, there wasn't any assistance from the government. Not like nowadays. (Now) If you don't have a house, the government would make you one.
> (Interview at 1BPR2 on 18 May 2009)

Indeed, Pok R2 and those who have successfully improved their livelihood through their effort in fisheries are particularly critical on those who do not put in maximum effort in their fishing operations. This *orang senang* fisher claims that although his family is in a relatively better position now, it had the same humble beginning as the others in the village. But the family has however been able to do better than others in household accumulation because as a fisher, he has always worked harder than the other fishers. The extra effort that he put in while fishing meant that he caught more fish than any other fisher in the area. He admits that even though his family now has more than enough material wealth, he would still want to make sure that he still makes a better catch than the other fishers. In his view, that extra effort is the key to successful livelihood making, and this labour-related resourcefulness allows him to continue to not only to make a living but also to get ahead.

The above interviews with those who have made it in these communities express a view that those who do not capitalize on one's own labour, which is a readily available resource to make and improve their living are simply being wasteful while those who maximises it are being resourceful. This view however is not only held by them, and is in fact representative of the Setiu fisherfolks' perspective on labour and effort. Even households in less

affluent categories emphasise the importance of diligence and resourcefulness. To the Setiu fisherfolks, effort, which is the active product of being resourceful, i.e using the resources that one has is regarded as a virtue. However, because one's own labour is regarded as the most available resource that one possesses, its value is often disenfranchised.

Nevertheless being resourceful is not limited to hard work. It is also associated with being innovative. All the successful fishers among the research participants owe their current success to having made an innovative change to their fishing operations at one point or another; Pok R2 for instance resorted to making smaller mesh size for his *kaya* nets while the other three decided to venture into full time *bubu* fishing. But far from being complacent, these successful fishers continue to explore other ways to improve their operations. However the same could not be said of the majority of fishers who as discussed earlier, are reluctant to venture into new types of fishery especially when it requires financial capital investment:

> Pok MJ: I think that we fishers have to change with the times. We can't just depend on subsidies only anymore. They keep saying that no one can be rich working at sea. Not true: that was in the past, in the days when fish was just a few cents a kg. Now, fish... a bag full is already RM200. Your cost is just ice. Nothing else!
> (Interview at household 1CPMJ on 17 October 2008)

Using more innovative fishing methods does seem to be a defining factor for successful fishing in Setiu, and less affluent fishers are fully aware of this. To secure the necessary equipments without drawing upon their financial capitals,

they take a step further to increase or broaden their labour capital by resorting to trade.

Trading labour for other capitals needed for fishing operations: the *Towkay-Awak* relationship

From one perspective, the Setiu fisherfolks' attitude toward inexhaustible labour suggests that it is a commodity that is undervalued by fishers. However, labour effort is also seen differently by other village members who might be interested in investing in a fisher via the *Towkay-Awak* fishing ventures. In such arrangements, the *Towkay*[99], a financial capitalist who does not fish, invests in the fishing market by agreeing to purchase specific fishing equipment required by select fisher(s), who then become an *Awak* to the *Towkay*[100]. In the past, fish *towkays* did not participate in the fishing operations but bought fish only once it was landed. The sale of fish was then an open market affair very similar to the existing whole-sale fish markets today. Due to increasing demand of fresh fish since the 1960s, the fish *towkays* have also begun investing in fishing equipment, such as the boat and fishing nets that were used in the fishing operations to secure the catch (Firth 1975). In return for the financial capital investment, the *towkays* who have financially supported successful fisher-entrepreneurs such as Pok R2 and Pok A.T of Gong Batu have full right to buy the catch made by the fisher; often at a price that is lower than market price. This is very different from relationship from another type of *Towkay-Awak* relationship that is discussed later in the chapter, where a

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[99]*Towkay* is a word taken from the Chinese language to mean 'the boss'. It refers to owners of capitals or more widely to anyone who owns an enterprise.

[100]An a*wak* is a crew member or worker. But the term also refers to anyone who works for someone else as opposed to a *towkay* who is someone who has people working for him.

fisher becomes an *awak* by working as a crew for another fisher, who then becomes his *towkay* against the payment of a share of the day's catch.

While some fishers enter into this relationship because they have no other choice due to their lack of financial capital, many fishers continue to use equipment financed by *towkays* even if they can afford to procure the required equipment on their own. In this instance, labour effort becomes a capital that buffers financial risks, much in line with the earlier discussion on spending extra labour effort in order to reduce financial costs. This reasoning applies specifically for riskier fishing operations such fishing for *Hokey* prawn, a commercially lucrative target species that is caught only during the monsoon season, on calm days using special three layer nets. But because it is significantly more arduous and dangerous fishing, the nets usually are not used for more than a season due to wear and tear damages. Furthermore, the yield is very unpredictable and one could spend a whole day or even a season risking one's life in the monsoon waves without catching a single prawn. Hence many fishers consider it less risky to use the *Towkay's* net:

> Jarina: Whose net do you use?
>
> Pok I: I use the fishermen association's (FA) net. If we didn't get from the FA, we could also take from the *towkay*. The capital needed to buy the net is big. About RM40 to 50 per set, and I need twenty sets. But [it's ok because] we use other people's. If it were ours, if they get damaged we'd lose. But if it's theirs, whenever they are damaged, we could just ask for more. And whether we get (prawn) or not, it doesn't matter. If it were our own, if we don't get any, we'd face a loss.
>
> (Interview at household 2API on 22 October 2008)

Unlike fishers from the other household categories, *orang senang* fishers such as Pok P2, Pok M.J and Pok Mi are not averse to risks. They explain that the hard work and risk-taking attitude is a positive approach towards fishing, which some other fishers lacked. In fact, the lack of positive attitude towards fishing and their unwillingness to take more risks in fishing are the strongest reproach that the *orang senang* group usually makes with regards to less successful fishers. This is clearly expressed in the interview below with Pok Mi:

> Pok Mi: Fishing with gillnet is very lucrative. But the gillnetters now fear the fuel cost. Although it is subsidised fuel, they worry that with the twenty litres of subsidised petrol, they can only fill one tank full. But I used to carry an extra tank even though I didn't get my fuel subsidized. The gillnetters worry they may not have enough to make the return journey if they go too far with only a single tank of fuel. And if they have double fuel load, they will have to pay double cost, at almost RM60. But I used to go far beyond those islands. If they go that far, they would have to spend double the fuel cost, around RM50. So if they get RM100, they make less than RM50. Hence they fear making too much losses. But maybe if they do go further, they'll get a lot more fish, two to three cases full, until you can't even load them in but have to pull them in with the net and only throw them off the net once you get on land.
>
> Jarina: So in your opinion, there's fish but they don't want to take the risk.
>
> Pok Mi: Yes, there's definitely plenty of fish but they don't want to take any risk. Now, they go one day, and then don't go for a few days but wait, see and listen for information on where others got fish. Then

only they will go. But it wasn't like that for me. We used to go out and look for fish. But now, they don't do that anymore, because they don't want to lose petrol.

(Interview at household 2CPMi on 17 Sep 2008)

Capitalising household labour: women and children's contribution to livelihood making

Fishing is not the only source of livelihood for Setiu communities. In fact, there are various non-fisheries-based livelihood activities, in which other members of the family participate that also contribute to household accumulation. Take Pok R2 for example, apart from his fishing success, he points out that his substantial accumulation of material goods – house, two vehicles, several fishing boats, a grocery shop, and cattle – is attributed to the whole family's hard work and resourcefulness in various livelihood activities. In the households of Setiu fisher-folks, recognition is given for the effort put into livelihood activities that family members carry out both indoors and outdoors[101].

Outdoor livelihood activities refer to those that are usually carried out outside the household and are remunerated, while indoor livelihood activities refer to household-oriented activities that are not remunerated. Indoor livelihood activities mentioned by interviewees include managing household

[101] In the case of Pok R2's household, his wife and children all had to contribute their time and energy to improve their family's livelihood because they had no one else to turn for help as their family and kin were also as poor as they were. So he worked at the sawmill during the day and fished for crabs at night, which his wife takes daily to the state capital, Kuala Terengganu where they fetched a higher price. Their children too participated in selling their father's catch, by peddling the goods door-to-door in the early morning before they go to school.

needs, or what could be termed as housekeeping. For this particular task, fishers rely on their wives, who manage the household while they are out fishing at sea. The importance of female labour is particularly emphasized in the Setiu households where husbands work away from Setiu, in bigger fishing operations in Kemaman and Kuantan, or further South the East Coast, and only return during off-fishing periods[102]. In these households, women are singly responsible for taking full care of household affairs, from caring for the children to managing expenses. Due to this heavy charge, they rarely have the opportunity to carry out any external livelihood activities such as fish cleaning or farming, unlike women whose husbands are working at home. But the situation has changed for most households in Setiu because the men have since recently[103] returned to work full time at home. The task of housekeeping is therefore shared between the couple, with women remaining in charge of immediate family needs (food and care) with men generally attending to children's schooling and utility bills. But many of these women also share the role of contributing income to the household through various economic activities such as babysitting, fish cleaning, crop tending, catering, sewing etc. In fact, women become the main breadwinner at times when their husband is unable to work:

> Pok I: The time when she was making cakes, I was unable to work.

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[102] Most of those who fish away from home are involved in large purse seine fishing operations that in the past did not operate during the full moon which corresponded to low fishing yields. This is because their target catch that are attracted to light are easy to attract and haul using their torches during moonless nights but become more disperse and harder to 'assemble' during moon-lit nights.

[103] Refer to Chapter III for the discussion on the return of Setiu fishers to fish locally after being away to work in large commercial fishing operations in Kemaman, Kuantan and Endau.

Jarina: You were sick, you mean?

Pok I: Yes. I had an eye illness. My eyes got hit by something, I don't know. Almost a year I couldn't work. So she had to make cakes to sell.

Mek P.I: I made cakes, took a commission to sell textiles.

Pok I: I was not working for about a year. But our *rezeki* from God came through a different avenue. She sold textiles and made quite a good profit. But when I started going to sea again, she stopped. She sold everything. When our *rezeki* is closed at one source, we seek alternatives.

(Interview at household 2API on 22 October 2008)

Without Mek Pok I's resourcefulness in these various activities during Pok I's illness, their household would have had no income. In his critique on the way that women's role are ignored in current fishery management systems, Jentoft (1999: 63) argues that in fact, women in fishing communities are "a buffer in times of crisis" through their economic contribution, and they "provide a whole range of services that are key to the viability of the fishing household as well as the fishing enterprises of their spouses". In these participating households, it is not only through separate activities that men and women share the role of earning livelihood income. The fisher-wives are also the fisher's partner in his livelihood activities. Five women for example are responsible in transporting their husband to their fish base every morning by motorbike or car and picking them up when they return from fishing. In the case of Pok Mi, his wife plays an even more important role than just his transport provider. This is because the other fishers from the base near Pandan Jaya who are gillnetters, set off to sea at the crack of dawn and are already gone by the time Pok Mi reaches the base at sunrise. With his wife Mek H's

help, his boat is pushed to the water's edge enabling Pok Mi to set his boat off at daylight, the appropriate time of departure for fish-cage fishers.

Most families in the case study sites own only a motorbike and, by sending their husbands to work, wives are able to move around and do land-based errands such tending to the tobacco plots or sending children to school more easily while their husbands are away at sea[104]. A women's ability to ride a motor-bicycle or drive a car is therefore often mentioned as an asset for Setiu households. For households that also grow cash crop such as tobacco, which requires heavy physical labour, husband and wife work side by side, and the ability to rely on their spouse to tend to the crop provided the opportunity to the fishers to fish between crop seasons:

> Pok S: Then I joined the tobacco planting scheme. But I still went to sea, once the major work with the crop is done. I went fishing for hokey prawn too, after the tobacco have been harvested and processed. Only after the prawn season would I return to work on land to plant tobacco. Whenever I could, I'd leave it to my wife to water them so I could go to sea. We have to as we are trying to make a living and raise our children. So I'd ask my wife to look after the crops in my absence. Fortunately she could ride the bike herself so she could go which is critical as the farm is not close by.
>
> (Interview at household 2BPS on 18 September 2008)

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[104] The distance to cover from one place to another is quite big in these new villages, as each household is given two acres of land when they were relocated. In the past, houses are built very close to each other, with "one's kitchen facing another's", as most commonly described.

This husband and wife working arrangement is required in households that also depended on gleaning cockles and clams, and collecting products from the river and mangroves in Gong Batu. Couples would go gleaning together but usually the husbands would set out to trap crabs after leaving their wives at the usual locations to look for clams and cockles. For those who sell these products on their own, the wife would be the one tending the stall. The fisher-wife therefore is a partner in more ways than one.

Women also seem to be generally regarded as better in household finances. For this reason, the household income is often entrusted to them. They are more finance-savvy and know when to save or to invest, as fondly recounted by an elderly fisher who had recently lost his wife:

> Pok S.M: It was my late wife who was keen on buying land. She was a forward thinking person. That's why we have some land now. She bought land from the inlands, so we own now a bit of land.
>
> Jarina: You mean she saved money to buy land?
>
> Pok M.S: Yes. She'd say to me, "somebody wants to sell his land. Let's buy some". I'd ask her "Do we have money to buy?" and she'd say "Yes, a little". She's the one who does all the saving. I don't lie to you but when I was working in Kuantan, we had up to RM30,000 kept inside this house. I asked her "how much money do we have right now?" and she'd day "about RM30,000". She just kept it in the house, when we were still in Penarik. (...) But really, I have so much to thank her for. Because she is a forward thinking kind of person who thinks about the future, and prepares early, she bought a lot of gold jewelry to keep. When I asked her why, she said, "You don't know, but this will be our

reserve when we are sick. When we can't go work to make a living or need to use money, we could sell them for cash". How right she was. She always said to me, "Whenever we are short of cash, we could sell them bit by bit. We have enough to help us get by in time of hardship". (Interview at household 2BPSM on 30 October 2008)

As for the children of the participating households, they contribute towards livelihood making mainly by assisting their parents in their livelihood activities. In peasant societies, "the enormous value characteristically attached to children is based on the material importance of children as a future labour force for the household" (Crehan 1992: 113). Most of the small-scale fishers' households in Setiu have more than the national average number of children (2.3 children based on National Statistics Department 2007's total fertility rate), with thirteen children being the highest (see Figure 26).

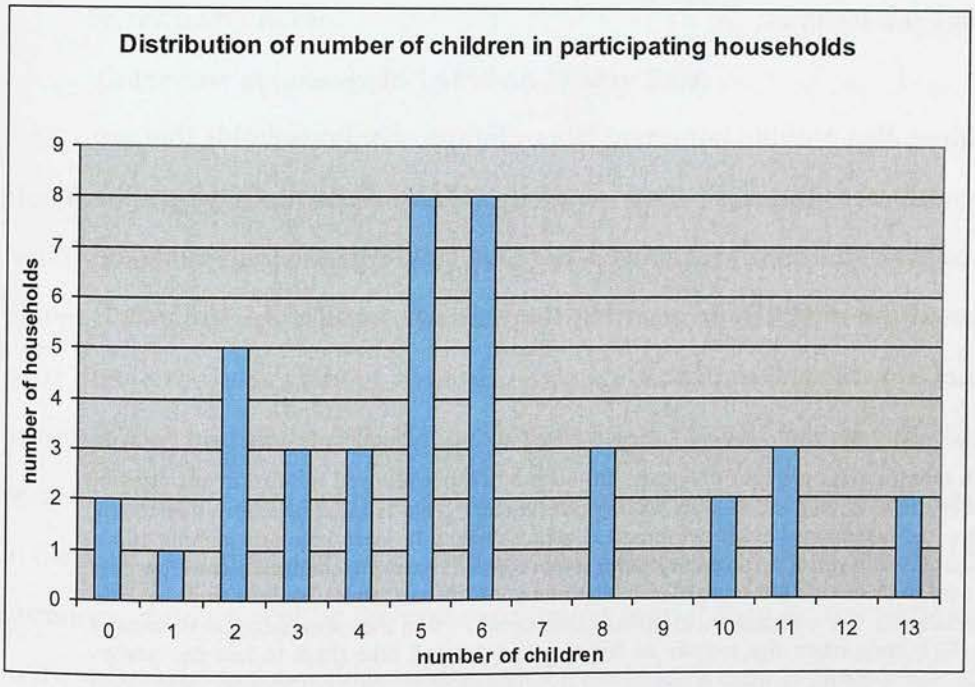

Figure 26. Distribution of children (total number) at participating households

Three couples within the research samples that do not have any children, or have only one or two offspring, raise other children as their own. The fostered children are usually those of a relative that has a less secure livelihood than the foster parents, or they have too many children or, in a few cases, they are divorced[105]. Without these exceptional circumstances, households do not easily give away their children, with whom they maintain close ties even after they have grown up and begun their own family. Children are regarded as an immeasurable form of wealth, whose future is the main preoccupation of parents. Having a big family is a celebrated fact among Setiu fisherfolks, despite the livelihood challenges that it imposes. Although no household would go as far as claim "that they have children because they are poor" (Crehan, 1992), they believe that one is not poor when with children, who are regarded as a *rezeki* that God has bestowed to the family and for whom God will provide (the family with) *rezeki* in the form of livelihood opportunities and fortune.

Children also provide important labour inputs. For households that are involved in tobacco and cash crop planting in Rhu Sepuluh rely on the assistance of their children and as well as other family members during the harvest due to the difficulty in securing the seasonal workforce. Children's

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[105] It is worth mentioning here that polygyny, although a practice allowed in Muslim societies in Malaysia, is very rare among small-scale fishing households. This is most probably due to the conditions that are associated with the practice, which makes it more common among more affluent households. A typical arrangement after a divorce is to have the children's grandparents usually take over their charge although their uncles and aunts do sometimes become their parents instead, especially in the circumstances mentioned earlier. But this arrangement is usually temporary, which ends when the mother or father remarries and take them to join the newly-formed family. As a result, in quite a number of households, the children included those from former marriages of either the husband or the wife.

assistance is equally important in fishery, which is an activity that has always been reliant on kinship social relations (see chapter VI).

Children can also be an important insurance against physical decline in old age. Although small-scale fishers in Setiu are focused on the operation of individual boats, some fishers rely on their children or siblings as an accompanying fishing crew. This need for a crew arises due to physical limitations, especially among the older fishers who no longer could fish alone due to their declined physical strength or eyesight:

> Jarina: And people don't ask you to join them?
>
> Pok W: Oh, they wouldn't ask me and I wouldn't go if they asked me. With my son, it's ok. But with others, I'd be concerned because at my old age, it's not appropriate to follow people. People would think badly of us, as we can't work so hard anymore and would just burden them. So it's better not to.
>
> (Interview at household 1APW on 21 May 2009)

However the need for company whilst being in the sea also arises for younger, healthy fishers when carrying certain types of seasonal fishery. For example, prawn fishing, which is carried out during the monsoon season is best done in pairs due to the heavy labour required to maneuver and pull in the prawn nets in rough sea conditions. When a fisher goes jigging at night during the squid season, having a fishing partner not only increases the potential yield but could in the least keep the fisher alert, therefore averting dangers in the sea. In these instances, children will be the preferred option even if they do not participate in the actual fishing as explained by Kak T whose husband goes squid jigging with their young son:

Kak T: When he goes squid jigging at night, he would sometimes bring our son, just to sleep in the boat while he is fishing. My husband says that if he was alone, his eyes would get drowsy. Like what old people say "fish alone, you die. But with two, you live". So when our son goes with him, he doesn't do any work. Just accompany his father. He would sleep while his father works, of course.
(Interview at household 1AKT on 23 May 2009)

As alluded to in previous chapters, having a large number of children to raise is the most significant livelihood challenge for the participating households, especially during the years that children are in school. Saving or any accumulation of asset is possible either before parenthood, or when the children are still young and not yet in school:

Kak T: (...) I can say that this house was built entirely using the income made in Kuantan. When we just got married, I can say that the income was a lot then because we didn't have any children yet. So RM1,000 was then a lot for the two of us. But now, RM1,000 is like having RM100 only back then. When we just got married, we were able to save a bit of money to build a house. It didn't matter that we didn't have any wealth, no gold. We saved up for the future, because we remembered the advice given by the elders, that if we wanted to build a house, best to (financially) plan before you have children. Once you've got children, you wouldn't be able to save to build a house anymore, they said. And how right they were! If I wanted to build the house now, I would never make it, with all five children still studying. It is really not enough! Just

> enough to raise children and send them to school. To build a house would be impossible.
>
> (Household 1AKT, 23 May 2009)

For this reason Pok M.A, the first one to venture into full-time *bubu* fishing in the research sample claims that his household belongs to the *orang buleh* category, unlike the other two *bubu* fishers, namely Pok Mi and Pok M.J who consider their household to be 'living in ease'. Despite earning the same amount of fish income as the other two, he considers himself to be in the mid-wealth category because six of his eight children are still under his charge. With three pursuing tertiary education and the other three still in school, his household has large expenses to cover and therefore does not have a large income surplus. In contrast, the other two *bubu* fishers, namely Pok Mi and Pok M.J, have only one and three children in their charge respectively, and have therefore been able to put aside large savings from their fishing gains. In fact, Pok Mi strongly believes that having many children is an impeding factor for livelihood improvement in his community:

> Pok Mi: We must think. People here have eleven, twelve children. They will face difficulty eventually. These children, they can't properly support financially. They can't even assure their schooling. Some get into kertum[106] addiction, and they roam aimlessly. So that's not good too.

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[106] A wild local herb species which leaves has hallucinogenic characteristics when consumed orally in solid or liquid form.

Jarina: In the old days, it was good to have many children as they are your resources to work the land, right?

Pok Mi: Yes, but nowadays, the children don't want to do any hard work.

(Interview at household 2CPMi on 17 Sep 2008)

However, despite the hardship presented in raising many children, especially during their schooling years, parents in Setiu consider ensuring their children's well-being as a strong motivating factor to improve their livelihood. Many parents, such as the mother in the below interview, explain that having a family makes them put in more effort as it gives them a higher sense of responsibility and motivation:

Jarina: Where was your husband fishing? In Kuantan?

Kak T: Yes. He's been fishing there for quite a while already. He told me that he had been fishing in Mersing, that when he was still single, he was not a very keen fisher. But once he got married, he was more serious in his work. So, when he was still single, whenever he got bored working in one area, he's move to another area. But since he had responsibilities (married), he would stay on working whether he's bored or not. Because he always had to remember that he had children, from one to two to three, to feed.

(Interview with 1AKT on 23 May 2009)

Education: a luxury in the past but is an investment today for a better future

Formal education has existed in Terengganu and in many Malay states prior to British rule in the form of *madrasah*[107]. During the British rule, secular education was introduced in the state, and primary schools were set up in cities and rural centres. Until the early 1950s, Kuala Setiu was one such centre, and all the children from the surrounding area that were at the age of schooling were sent to school. But as explained in the previous chapter, most were unable to continue their secondary education because it was considered a luxury that only the well-off could afford. The end of primary schooling was thus often considered the entry point into a fishing career, which was a natural option for them because fishing was the major economic activity for the area (Parry 1954). For a fisher then, there was no need for high level of formal education since one's worth as a fisher depended principally on his effort as well as fishing knowledge and skills. But in the contemporary context, fishing is considered to be a last resort for those not educated enough to qualify for a different kind of employment. Although all the research participants are literate, very few had stayed in school beyond primary level education, and their lack of education is considered a hindrance to acquiring new knowledge. A good example is the use of the GPS units which were provided to them by the fisheries department to modernize their fishing operations. Unfortunately, they were not able to use them because they did not understand English, which is considered a language only for the learned:

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[107] Considered a modern type of Islamic school where the curriculum is a combination of both Islamic-based course subjects and modern course subjects.

Jarina: Were you given a GPS by the Fisheries Dept?

Pok Su: Yes. But I don't know how to use it really.

Jarina: They didn't provide training?

Pok Su: They did, but only for a day. Showed where to press and what to key in. It's not easy to remember, with just a short training like that. With training for a week or two, we may be able to learn how to use it better.

Jarina: It would make a lot of difference if GPS could be used, no?

Pok Su: Definitely. We could key in a location and will always be able to find the very same spot again be it night or day.

Jarina: Did many people get a unit?

Pok Su: Quite a number. But no one's using it.

Jarina: The folks in Rhu Sepuluh say that it's because the commands are in English.

Pok Su: That's right. We didn't go to school, you see. So we don't understand how to key in. But the GPS units that are in big boats are simpler, with only numbered commands. That's easier to manipulate.

(Interview at household 2BPS2 on 24 September 2008)

For these reasons, Setiu households care about their children's education. While it remains to be financially challenging for many households, education is something fisher-folks are willing to invest in. There are primary schools in both villages. However, while there is a secondary school located close by for the children of Rhu Sepuluh, the closest one for the children of Gong Batu is located at 15 km away in Saujana. Due to the distance, the Gong Batu children have to stay in the school's boarding facility and the resulting

schooling expenditure is said to be significantly higher for the households in Gong Batu:

> Mok C: We never managed to save, as our children were all in school.
>
> Pok A: Yes, they were schooling then.
>
> Son: The school fees were already RM45 for each a month. So with five of us?
>
> Mok C: That's for the secondary school.
>
> Son: That's not including the pocket money and what not yet.
>
> Jarina: So you all were staying at the boarding school in Saujana?
>
> Pok A: A few places, because the boarding school in Saujana is quite recent. So they were there in Kampung Raja, Kampung Buluh…
>
> Son: In those days you could not make daily trips to school. Even the tar roads weren't built yet.
>
> (Interview at household 1APA on 18 may 2009)

Despite this disadvantage, there are noticeably higher rate of academic success among the children from Gong Batu compared to the Rhu Sepuluh fisher households. Nine households from the former village have children who made it to tertiary education as compared to only four in the latter, and children's academic achievements are always mentioned with pride for education is regarded as an important human capital.

Parents in Setiu strive to provide a better future for their children, and providing opportunities for academic education - the most challenging aspect of raising children - is also considered the best thing that they could do for them. It is also something that their own parents, in their impoverished state

had not been able to carry out. The ability to support their children, especially at higher education level, is one of the most important successes that they credit themselves with. Similar to high investments made in children's education by peasant farming families in Africa who did not see farming as a good option for their children (Francis 2000), the parents from Setiu fisher households do not want their children to become fishers because they do not see a future in fishing:

> Abang M: Talking about fishing today, there's no one who depends mainly on the sea anymore because there's nothing at sea anymore. It's mainly seasonal now. During the prawn and squid season and then nothing. I used to have fish net [*pukat kaya]* like Pok Ya last time. So did Pok Imam but it's just not worth it nowadays. The cost is so much higher than the return.
>
> Kak Z: That's why it's better to work on land. Even if it gives RM15 a day, it's still better than going to sea.
>
> Abang M: The same goes for those who work [on commercial trawling boats] in Kuantan. They only get to rest three days a month now. Not like in the old days when they will definitely come back during the full moon period. There's no more fish now. And the money they bring home, is not as much as before.
>
> (Interview at household 1AAM on 23 July 2008)

Land-based employment is considered their children's better bet, which a good education helps to secure. So, parents put their children's education first even if it meant having to put aside more savings or working harder to cover the costs, especially for the Gong Batu villagers. But knowing the fact their education costs higher for their parents may have contributed to the higher

rate of success among Gong Batu children. Complemented by the more conducive environments which boarding schools provide, their parents' efforts could be the motivating factor for these children to take their studies seriously.

Health and physical fitness: a valued capital that lacks investment

Due to the heterogeneous and uncertain nature of the sea, fishers are required to be better equipped to ensure their survival (Acheson 1981). As discussed in Chapter III, this has led to different methods and strategies that are used by Setiu fishers in their fisheries-based livelihood activities. However this reference is made not only to the material resources, i.e fishing apparatus, but also to human resources. As illustrated above in the cases of Pok I and Pok W, aging or poor health means that fisher families have to consider alternative ways to make an income, or they need to find a way to compensate for their inability to put in maximum labour effort. Clearly, health and physical fitness are the other elements of human capital that are important to them.

With a few exceptions, all the fishers interviewed profess to be enjoying good health. As illustrated in Figure 27, the participating fishers are matured fishers aged between early thirties and late seventies with the majority belonging to the forties and fifties groups[108]. However, there are still a few elderly fishers who remain active well beyond the age of sixty (two gillnetters and one line fisher in Gong Batu and one gillnetter and two line fishers in Penarik). But these elderly fishers are usually no longer able to fish

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[108] This distribution is representative of the national demography (Department of Statistics Malaysia 2010).

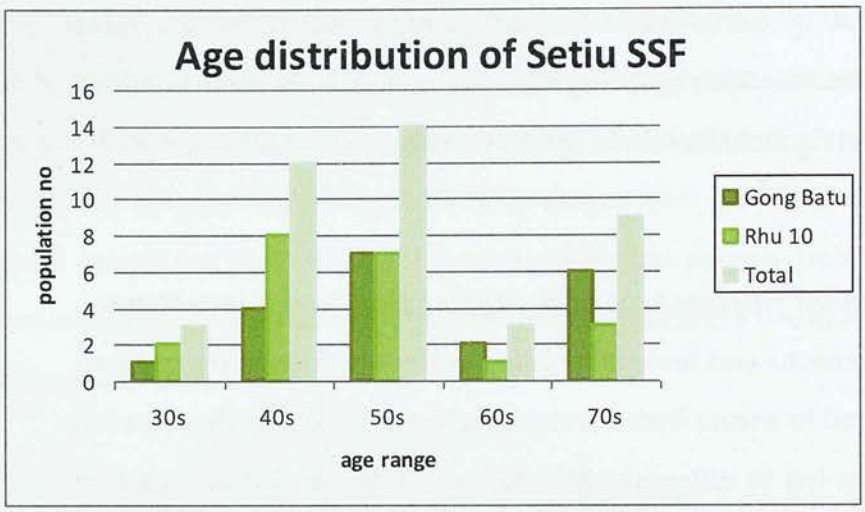

Figure 27. Research population's (fishers) age distribution

alone, for their reduced physical abilities makes fishing potentially less productive and more dangerous. Those who use the gillnet need a fishing partner because their reduced physical strength makes drawing in the heavy gillnets an almost impossible task, and failing eyesight creates a safety issue for all elderly fishers because it compromises their traditional land-marking ability that they depend on to set out for fishing grounds and to later return to their fishing bases. They therefore have to depend on the physical abilities of their younger fishing partner during the operations. Furthermore, because informal profit-sharing rules dictate that fishing profit is divided equally between two fishers, elderly fishers[109] prefer to fish only with their own children, close relatives or good friends. This is because a family member or close friend would not mind the negative effect of their reduced physical ability to the fishing's productivity as much as other fishers would:

[109] As explained in Chapter 3, some of these fishers continue to work well into their old age because they had to while others do so because they wanted to fish for as long as they could.

Jarina: During the off prawn and squid seasons, do you not go to sea then?

Pok W: That would depend on my son. Not much anymore now. But last time, I did. I'd follow others to net for *gelama*[110] for example. But now, if my son goes away for four months, then I'd be doing nothing all that time. I can't follow people anymore. But sometimes, when I feel strong, I would go out with others, when I feel bored staying at home.

Jarina: And people don't ask you to join them?

Pok W: Oh, they wouldn't ask me and I wouldn't go if they asked me. With my son, it's ok. But with others, I'd be concerned because at my old age, it's not appropriate to follow people. People would think badly of us, as we can't work so hard anymore and would just burden them. So it's better not to.

(Interview at household 1APW on 21 May 2009)

Pok W's reluctance to burden other fishers finds its explanation in the local rule of fish distribution, which follows the distribution rule that has been used in traditional large scale traditional fishing operations such lift net, beach seine and *payang* nets[111] (Firth 1975). When fishing is not carried out alone, the share for each fishing crew, which means anyone who is involved in the fishing operations, is evenly shared regardless of age and effort. As a rule, every crewmember gets an equal share as another regardless of the amount of

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[110] Croaker

[111] See Firth (1975:) for an extensive account on the economics of fish catch distribution among traditional fishermen in the East Coast of Peninsular Malaysia.

effort that is put in. Having said that, it really does matter how much effort is exerted during a fishing operation because a fisher's value to the team is based on his contribution. Therefore, each fisher must have the willingness and physical fitness to work as hard as the other crewmembers to morally deserve their share of the catch.

Due to the morally expected contribution that each crew member must make to earn his share of the catch, elderly small-scale fishers prefer to only fish with those who would least mind their reduced input. For the same reason, those involved in commercial fishing operations who feel that they are not able to contribute the expected amount of effort to the fishing operation especially due to health problems prefer or feel obliged to stay out of the operation if it is a temporary condition or quit the team if it is a permanent one, to avoid taking advantage of other fishing crew's labour effort. For many of the research participants who had formerly been fishing away, the inability to fulfill that expectation due to old age is one of the main reasons why they had decided to return to fish locally[112]:

> Pok A: (...) So I was working in Kuantan even before I was married and my eldest child is already twenty three years old now. I only quit about four years ago, and started working here. I stopped because I felt old already and don't have the strength anymore.

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[112] Individual fishing provided them with the freedom at work that they otherwise did not have as a crewmember, which meant a lot for those who are more advanced in age. This makes fishing at home a more attractive option, even for those who did not benefit from boat subsidies. This is the case for most Gong Batu fishers who had to instead acquire a boat and other fishing equipments on their own, unlike most of the fishers in Rhu Sepuluh.

(Interview with household 2APA on 19 November 2008)

Physical fitness is not only an important asset for fishing activities, but also for other livelihood activities that the Setiu fisher-folks are involved in. Tobacco requires hard labour work during the planting and harvesting seasons, and tobacco farmers often have to resort to paid labour, which increases the operating costs and reduces their profit margin. Due to this, combined with a recent cut of crop quota[113], many have resorted to planting other types of crop instead. Physical fitness is also important for those involved in river gleaning. They have to spend time in the river, sometimes trudging through the current to look for cockles. Good health is indeed a constant concern for families, as expressed below by Mek Ani, a woman from a tobacco planting household:

> Mek A: (...) So everyday, my prayer to God is to have good health so I could go on working. That's why I tell my children if you want to study, study hard. As far as you could go, go. We don't want our children to face the hardship that we did (as fisherfolks).
>
> (Interview at household 2BPS on 18 September 2008)

Health care: still a price too high for the less affluent

It is interesting to note, however, that while health is a matter of great concern to the Setiu households, seeking healthcare is not always considered a

[113] At the beginning of the tobacco planting season, a vote is made to set the crop quota for tobacco. This refers to the quantity of tobacco leaves that each farmer is allocated to sell, which then sets the quantity of fertiliser and upfront cash advance that the farmer would be given for the planting season. Having a smaller quota would therefore mean having to raise higher initial capital to cover the tobacco farming operations.

prioritized option for ensuring good health. This is despite the fact that access to health care should no longer be an issue for them. Since the country's independence, rural healthcare improvement has been given a priority by the government, and one of the major steps taken by the Ministry of Health was to extend the modern health care system that was only available in major urban centres of the country during the British rule[114] to rural areas (Ariff and Teng 2002). According to Juni (1996), a network of health facilities has been established to provide basic care particularly in rural areas where free[115] health services are given through rural health units. The former consists of a rural health centre that overseas four rural clinics which is intended to cater for up to 4,000 population (Juni 1996, Ariff and Teng 2002). In Setiu, there are four health centres and thirteen rural clinics; including the one in Rhu Sepuluh which serves the communities in the area and another in Fikri which serves the Gong Batu population. There is also a newly-built (since 2003) general hospital in the district capital (Permaisuri town) at less than thirty kilometers from the two case study sites that caters to general medical care and a number of specialist care. There is therefore inexpensive and geographically accessible healthcare available for the communities in the area, which means that the reasons for this ambivalence lie elsewhere.

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[114] Although there were a number of medical establishments set up in the large British owned plantations and estates mainly in the West Coast of the Malaysian Peninsular to cater for the workers, the rural population during the colonial time was still mainly dependent on traditional types of medical resources (Ariff and Teng 2002).

[115] In Malaysia, rural health care services range from outpatient curative care to preventive and promotional services (Juni 1996). General medical and nursing care is provided by district hospitals while specialist health care services are available at larger district or state level facilities.

One reason for their disregard towards healthcare may well be embedded in the importance that they put in their daily struggles in livelihood making. Not surprisingly, a lack of healthcare was most prevalent amongst households that are in hardship. From an *orang susoh* household, a wife recounted how she suffered nerve pains but she felt she could not afford to stop working. Seeking healthcare is less of a priority when one has to continue to make a living:

> Mek E: (...) The only days when I don't work is when I'm really sick: when all my body aches, and I can't even get up. This body has been at work since young, non-stop.
>
> Jarina: But you are otherwise healthy?
>
> Mek E: Me? Well, I have this pain in my shoulder. It feels numb at night. This morning I thought of going for a massage but then it felt much better so I changed my mind. If we thought about the fact that we are people in hardship, we feel helpless. When I sleep, I'd lie just on one side. I do look healthy, no? But I have problems with my nerves. Well, after 11 children, what would you expect, right? And then with the hard work... To deliver the last one, I had to be operated.
>
> Jarina: How old were you when you had your last child?
>
> Mek E: More than fourty already.
>
> Pok H: The doctor said she couldn't have the baby the normal way anymore, because they were afraid she would get tired.
>
> Mek E: When people took me to the hospital to deliver the last one, I was actually processing anchovies!
>
> Jarina: You don't have other illnesses?

> Mek E: Other than this nerve problem, I'm fine. So is he. When I process the fish, we had to process at least three fibre boxes. But when I'm working on the fish, I don't feel tired. I only stop once all is done. (Interview at household 2APH on 19 October 2008)

For her and those who are struggling to make ends meet, healthcare is often regarded as a luxury they can ill afford. While free medical care is available to them, making time to get it means a loss of income. Even Mek A, the wife of the most successful fisher in Gong Batu can relate to this predicament. Having been poor before, she recalls how in the past she didn't take any medication besides pain-killers, even when she was sick, because she wanted to save the money for her children's schooling[116]. Ironically, now that free healthcare is available[117] and she is able to afford to pay for more expensive treatments, she claims that there is no solution for the body pains that she suffers from.

As alluded to in an earlier discussion, Setiu fisherfolks are a close-knit society where a strong obligation exists to care for sick members of the family of neighbours. A study by Tracy and Tracy (1993:46) reveals that while "there is a high incidence of physical impairment and need for assistance in activities of daily living among rural elderly population in Terengganu, the informal support system are performing relatively well through multiple in-kind assistance from adult children, spouses, relatives, friends and neighbours".

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[116] This was because at that time free government healthcare was not yet available in the area.

[117] There is a family clinic that provides general outpatient treatment in Rhu Sepuluh. For the Gong Batu community there is one located in the nearby village of Fikri. For more specialized or intensive medical care, there is the Setiu District Hospital located some 40 km away from these villages.

Therefore, livelihood activities are affected when someone in the extended family network falls ill, as illustrated in an interview with a young couple in Gong Batu:

> Jarina: I have been told that you have not been going out to sea very often since your mother fell sick.
>
> Pok J: Yes. I think since she fell sick, I have only made RM300, because I only go once in a while, whenever I could find time. Just RM300 for a whole month.
>
> Kak N: As she was sick, we felt uneasy to go out. In case something happened here on land while he is at sea, the distance to cover to come back again is not short. So much of his time was spent on land. When he wants to set out to sea, he'd worry, day after day. The other siblings who live further away have all returned so it would not be proper if we, who live the closest, were to leave. She has been sick for more than a month already. So the family from far have been back for about two weeks only. But as for us, we really can't move at all.

For this reason, it is not unusual that medical care is purposely neglected not only to be able to continue with one's livelihood making, but also to spare other members of the family from having to take days off from theirs. As apparent from the interview, households that depend solely on fishing may have to forgo any income in such circumstances. During the research, I came to know of two cancer cases, one from each studied village. Both concerned women were over fifty years old, namely Kak C and Mok CPM. The former, who passed away in 2009, was suffering of diabetes but refused to see a doctor to treat a badly affected limb, in fear of getting it amputated. This, she said,

would adversely affect her everyday activity as well as her morale. Therefore, she resorted instead to various traditional treatments. Only when it was causing her severe pain did she agree to be taken to the hospital, at which occasion she was diagnosed with breast cancer. She unfortunately passed away before she was able to undergo an operation to remove the cancer-affected area[118]. As for Mok CPM, she refuses to undergo her post-operation chemotherapy at a cancer treatment centre in the capital of the neighbouring state Kelantan because it would be an inconvenience to her husband and family to have to travel 150km to care for her there. For her, a woman who is well over seventy years old and who works at the *keropok lekor*[119] manufacture whenever she felt better, the impact of her surgery upon their collective livelihood would be too extreme.

Things are a lot more optimistic for families that can seek medical treatment for ill family members without losing their livelihood, such as the case for a couple from Rhu Sepuluh whose youngest child was born with a heart disease. Because the husband works full time at the aquaculture plant, he was able to take paid leave to travel every month to Kuala Lumpur, where they stayed for a few days while the child went for his treatment, until the child succumbed to his illness in 2009. As for another couple from Gong Batu whose baby was born prematurely and had to be cared for in the intensive care unit at the Kuala Terengganu General Hospital, they consider themselves

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[118] Kak C was supposed to be admitted to the oncology unit at the Kuala Terengganu state hospital for an operation but the district level hospital had failed to inform her of her operation date. This may well be an exceptional case of negligence by the hospital staff but the patient's ambivalence, if not fear towards surgery may also have contributed to this regrettable error.

[119] A popular local dish made of fish paste.

lucky that they are at least able to travel often to the state capital to visit. This was only possible because the couple had recently earned a contract to run the canteen at the local school, which gave them more financial security and less dependence upon less secure livelihood options. For the first couple, they are said to be at peace although their child did not survive because they were able to see their child grow old enough to be able to play with his siblings, while the second couple confided that being able to care for the baby would comfort them tremendously, even if he did not survive.

Local socio-cultural perceptions of health and illness among Setiu fisherfolks

Although their concerns for family livelihood may well explain why the women in the two earlier examples purposely refused to seek medical care, their socio-cultural perceptions of health and illness may also have contributed to this behavior. It could be argued that due to on the one hand their age[120], and the condition that they suffer from on the other, they were less keen on extensive medical treatment. Age-wise, they belong to a generation that is still skeptical on relying fully on the intrusive methods in modern medicine, especially when it involves surgery. Less familiar with modern medical system, they prefer instead the 'soft' alternatives found in traditional healing methods. This is typically prevalent in societies in transition in the developing world, and a study found that in rural Malaysia, patients usually seek alternative healing within a week of seeking modern medical care (Kroeger 1983). The contrary view is seen in the parents of the sick children who are in their late thirties and are assumed to be more accustomed to modern medicine than its traditional alternative. They therefore may be more willing to put their

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[120] Kak C was approaching sixty when she passed away while Mok CPM is already in her late sixties.

hope on modern medical institutions. The earlier mentioned study by Tracy and Tracy (1993) on the elderly population in Terengganu also found that women are particularly reluctant to seek medical treatment due to their view that old age is a disease and certain ailments are the inevitable consequences. This suggests that while their morbid perception of old age may cause the two older women to refuse extensive care, the parents of the sick children may be willing to go further because of the young age of their children.

According to Ariff and Teng (2002: 102) "the rural Malaysian community perceives health as a feeling of well-being and an ability to participate in social activities – a feeling of harmony that helps a person integrate into his or her environment and interact with community members". The fact that late Kak C and Mok CPM were diagnosed with breast and ovarian cancer respectively may therefore have also contributed to their reluctance to seek intensive medical care. There are often taboos surrounding the way that cancer related treatment affect womanhood. There is fear of the mastectomy procedure in conventional breast cancer treatment among women all over the world. In Malaysia, Hisham and Yip (2003) report that the effectiveness of breast cancer treatments is impeded by "social and cultural perceptions of the disease" while in the state of Sabah, more than 20% of breast cancer patients defaulted on treatment in favour of traditional healing options (Leong et al 2009). In the same vein, therapies such as radiology and chemotherapy are dreaded due to their post-treatment effects such as hair-loss, which Mok C told me she was particularly concerned with when I visited her after her operation. Indeed, these expected physically life-changing side-effects of modern medical treatment of cancer may be enough to discourage the two women from pursuing them due to the repercussion that the physical changes that they inflict which patients' perceive to affect their place in society.

It would therefore seem that inasmuch as physical labour is often the most important assets among less affluent households in Setiu, health and physical fitness are deemed indispensable capitals in livelihood making. Ironically however, the research data reveals that healthcare- while valued and accessible in the case study villages- has its value held by the participating Setiu fisherfolks in comparison to how it will on the one hand influence the immediate loss from having the time to seek health care and how it changes their ways of living and social life on the other.

A fisher is worth as much as his fishing knowledge and skills

In livelihood approach, there is a particular interest in revealing people's knowledge and skills, especially indigenous knowledge and skills that they use in their livelihood making. They are another set of human capital, with which people are able to engage meaningfully with the world as well as change it (Sen 1999). In the uncertain and heterogeneous environment of fishing, fishers' knowledge and skills are particularly vital in ensuring effective livelihood making (Firth 1975, Acheson 1981). This aspect of human capital, especially the local ecological knowledge, that fishers possess is increasingly being recognized by scientists who now seek fishers' input towards a better understanding of fish ecology and local marine environments (Johannes et al 2000). In the case of small-scale fishers in Setiu, their knowledge and skills in fishing are found to not only secure and improve their livelihood, but also to increase their 'worth'.

Fishing related knowledge and skills are particularly essential to the success of a Setiu small-scale fisher household. This human capital is something that one uses to get by and more so to get ahead. In a large fishing operation for example, a fisher would be given a bigger responsibility or special functions if he had some specifically required skills, such as making certain knots or sewing the fishing net, for which he will be given a separate wage than his share as a crew member. For this reason, an exception is always made for experienced and knowledgeable *Tekong* or Master Fisherman of extended age to continue leading the fishing operations.

As mentioned earlier, the *Tekongs* gain a higher income than the rest of the crew[121] because they are instrumental during fishing operations. With their ability to locate fish due to their knowledge of fish behavior and the local marine environment, which derives mainly from their traditional ecological knowledge (TEK)[122], they earn the respect needed to direct the whole fishing crew[123]. In *Gelama* fishing, the ability to listen to fish among *Juruselams* or Master-divers is particularly important and also earns them a higher income than a normal crew. In fact, due to their fishing knowledge and skills, some elderly fishers such as Pok NS are actually preferred by their younger colleagues because they know the best locations to fish, especially where old, matured artificial reefs were located:

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[121] As a rule, a Tekong always get at least a tenth share from the gross catch income. On top of that, he will be paid a crew's share from the profit made. But the distribution ratio varies between regions, where the Setiu.

[122] According to Huntington (2000), TEK is defined as the knowledge and insights acquired through extensive observation of an area or a species that is either passed down in an oral tradition or shared among users of a resource.

[123] Firth (1975) explained how the respect and reputation that a *Tekong* benefited of were most useful in attracting the most able crewmembers, thus improving the dynamism of the group.

Jarina: So you do know where the artificial reefs are located? Which ones do you know?

Pok NS: The big one, and the Chief Minister's artificial reefs, the tyre reefs. On clear days, I would be able to find them. Like Mamat, he tracks them using GPS (Geographical Positioning System unit) but we just use our eyes to identify the landmarks. This tree or that rock.

(Interview at household 1APNS on 7 November 2008)

Like Pok NS, most Setiu fishers mark their fishing locations using a "land-marking from the sea" technique, a traditional version of Geographical Positioning System (GPS), which I term as Traditional GPS (TGPS). This TGPS depends upon familiarity and knowledge of the local area's natural geography. Despite having been fishing away from the area during their involvement in commercial fishery outside the region, the Setiu fishers' knowledge of the local marine area remains intact. A location is marked based on its position in reference to the islands and the coastline, especially its prominent landmarks such as the hills, mountains and capes. Therefore, as long as they have good eyesight and the day is clear, they could locate these land-marked areas. The TGPS is said to be just as effective for identifying fishing locations as its modern technology equivalent. With it, Setiu small-scale fishers are therefore able to compensate for their handicap in using an English-language operated modern GPS unit.

Although almost all the local fishers have TGPS skill, the younger ones have less knowledge of local fishing ground locations compared to the older fishers. This is because the former have spent most of their fishing career away

from Setiu. Since the introduction of modern commercial fishery since the 1960s, a great number of fishers from fishing villages along the East Coast left the local fishery to join large scale purse seine and trawl netting operations in larger fishing ports such as Kuala Besut in the north or Kuala Terengganu, Kuantan, Kemaman and Endau in the south. But even though the older fishers had joined this occupational exodus as well, they would have fished in the local marine area long enough to acquire the necessary knowledge on the local marine ecology and coastal geography to enable them to TGPS the best fishing spots by the time they left their village for the bigger fishing ports. For the same reason, these older fishers are said to be very accurate when it comes to locating good artificial reefs sites, which usually are the older ones such as the tyre reef.

Because the younger fishers spend most of their formative years fishing for commercial fleets, they also lack certain fishing techniques and related skills that are necessary to fish locally. For this reason, the elderly fishers are also an important reference point on for their younger colleagues. Through their guidance and assistance, younger fishers are able to acquire certain fishing skills, such as catching the much coveted *Tenggiri* (Spanish mackerel) fish. However, not all knowledge and skills are willingly transferred to other fishers. These are in fact assets which tend to be guarded and perhaps only partially shared with others:

> Jarina: But a certain skill is required for Tenggiri fishing, right?
>
> Pok LI: I would not say that I am particularly skilled. I am actually still in the learning stage. I am now learning from experts in the area, like

Pok Teh. When it comes to *Tenggiri* fishing, he is considered 'Number One'.

Jarina: I had a chat with him the other day but I thought he's using fish-traps nowadays.

Pok LI: He is fishing more with fish-trap nowadays but only checks them once every few days. So on other days, he would be line fishing. But you know, it is not easy for people to share such knowledge easily. But after asking to learn from him nicely, he finally agreed to teach me a thing or two, but not everything, of course. There're still a lot of techniques that I do not know but with what learn, I apply and try to figure out the rest myself.

(Interview at household 1APLI on 21 May 2009)

Through his friendship with Pok Teh, Pok LI successfully convinced the former to teach him the art of *Tenggiri* fishing which is a TEK-related skill that is becoming less and less available with the demise of older generation of fishers. The same applies to *bubu* making, which is a fishing tool that is becoming more and more popular in Setiu. It is claimed that everyone could make a *bubu* but not everyone can make one that works. The secret lies on the *unjap*, the entrance of the fish trap[124]. The knowledge of a proper *unjap* design is only available among a few elder fishers who have been practising traditional *bubu* fishing in the area, whom Pok MJ had to persistently approach to get them to show how to make the proper *unjap* design:

Jarina: How long did it take for you to get it right?

[124] A well-designed *unjap* would allow fish to easily enter the trap but it would not be able to exit.

Pok M: Well, before I quit the job, when I began to hear rumors that I was going to be transferred to KL, I began going around a few nearby villages where people make the *unjap* (fish trap mouth). The frame is not a problem because it doesn't matter how it looks. What matters is how to adjust the shape to maximise the number of bubu you can make out of a roll of mesh wire. I went all the way to Duyung to learn. But it's not easy to learn because people will not show you how. So you must know how to learn through observation. So you just have to put on a thick face and watch. I went to Merang too. So I watched. Then in Kuala Baru, where there were bubu made by people from Kuala Pahang, I found this model. It's the same one I'm using until today. The other models don't really work. They do work but the thing is, to trap fish in coastal area, you need a different type of *unjap*. Just look at Pok Chik. He uses *bubu* too but I am saying this not as a criticism, I do not think he makes even RM200 a week with his bubu. He has many *bubu* too but they don't work. His *unjap* is faulty. The fish go in but the fish can go out again. It's the same with Ipin's *unjap*. It works during the early season (murkier water) but not when the water is clear.

(Interview at household 2CPMJ on 17 October 2008)

It is equally important for a fisher in Setiu to be able to make and repair his own fishing equipment such as nets and fish traps, which allows him to save a great deal in capital expenditure. Some fishers even take commissions to make fishing gear for others. Fishers also maintain and repair their own fishing boats, and can be found most Fridays, which is an off-fishing day, on the beach by their boats, carrying out general maintenance activities on their boat such as waterproofing holed hulls or attending to their equipment such as

mending nets in preparation for the next fishing trip (see Figure 28). There is substantially more boat maintenance work to be done in Rhu Sepuluh as compared Gong Batu, for whereas the Gong Batu fishers can leave their boat moored at the river jetty near their village, the Rhu Sepuluh fishers, whose boats are landed on the beach, have recently adopted a new landing method called the *Lachong* landing method[125]. This method, which is reportedly developed by a local fisher during a prawn season[126] just a few years back is less tiring for the fisher. However, it is more taxing on the boat's hull, where its fibre-glass layer gets stripped off each time it forcibly meet with the rough sandy surface of the beach.

The Friday afternoon boat maintenance, which has been a practice in the East Coast region since pre-modern time (Firth 1975) is participated by all fishers and more commonly involves the general non-mechanical maintenance of their boat. The mechanical maintenance is usually handled by engine mechanics and can be costly. Usually, the charge for labour is equal to the cost for the spare parts. Therefore, if the engine is badly damaged and a lot of parts need replacement, a fisher could pay a large sum of money to get his engine repaired. Pok MJ of Rhu Sepuluh and Pok J of Gong Batu, however, are able to save the labour cost because they can do the repair work themselves.

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[125] In the past, the Rhu Sepuluh fishers would alight from their boat as soon as they reach the shallow parts of the beach and pull their boat edge of the water. With the help of other fishers or local villagers, their boats will then be pulled further up the beach. Now, however, the fishers of Rhu Sepuluh would target a spot on the beach as they move close to shore and then drive the boat in full speed towards it, causing the boat to crash land beyond the water mark and straight on the sand.

[126] During the prawn season, small-scale fishers of Setiu go netting during the calmest days of the monsoon. But the sea is still considerably rough during these times and returning to shore is difficult, tiring as well as dangerous. The method developed in Rhu Sepuluh after one of the fishers in Rhu Sepuluh broke a leg after trying to alight from his boat to land it.

Figure 28. Fishers carrying out their 'Friday maintenance' activities at their fish base

Repairs and making of fishing gears are also carried out during fishers' spare time: such as during their off-fishing days or in between fishing trips, either at home or at the fishing base. Because my interviews are made at the home of the participants at a time suggested by them, our sessions would usually be carried out while the fisher is repairing a net or making a new *bubu*, for example (see Figure 11a of a fisher repairing his fishing gear at home). These repair and gear making sessions, either on the beach or at home are also the best time to upgrade one's fishing related skill and knowledge. In a laid-back, easy-going manner, new or additional knots making or mesh knitting or *unjap* designing techniques are taught by the mentor-fisher to his student fisher(s).

Besides their fishing equipment, small-scale fishers in Setiu also build and repair their homes. This carpentry skill is particularly helpful for the less affluent households especially so when acquiring carpentry assistance would require a lump sum of cash, a resource which is available only for the more affluent households. So when Pok Az was given land to build a home, he bought wood whenever he had extra cash and worked on the construction of their family home whenever he was free. Similarly, Pok D of Gong Batu, who was working on the extension of his house when the fieldwork was carried out, agrees that for *orang susoh* households such as his, doing the work himself, thus combining his labour effort with his building skills, was the only way that they could afford to build or improve their homes.

The importance of fisheries-related knowledge and skills is duly recognized by LKIM and the Fisheries Department which provide various programmes with the objective to build the capacity of the local fishers with new fishing methods and technologies. But the participation of local fishers in such programmes is not very high. In fact, it appears that hardly any Gong Batu fisher has participated in them. This seems surprising considering the value that Setiu fishers put on fishing-related knowledge and skills. But further probing on the matter reveals that while Setiu fishers do recognize the importance of upgrading their skills and familiarizing themselves with modern technology and appreciate the fishery agencies' good intentions; most of them just cannot afford the time to attend them, as Pok DS explains:

> Pok DS: (...) They have to come here, but not ask us to go to them. We are not wage earners like them. They have to think that when they want

to help alleviate our (economic) status, they have to think about our time.

(Interview with 1APDS on 21 July 2008)

Thus, as with health care, many Setiu fishers find it difficult to spare time from their livelihood making activities to attend training courses and workshops even if they may well wish to. Unlike traditional types of knowledge and skill that are acquired in their spare time, these agency-organized activities follow the officer's work schedule which rarely coincides with fishers' (fishing) off days. Those who could attend owe it to their ability to take time away from fishing without jeopardizing their livelihood. For example, Pok D who proudly claims to be the one who has attended more training courses than any other fisher in the area works part-time at the fish plant in Rhu Sepuluh and is therefore able to take leave from work to attend such programmes. Hence for those who are unable to take time off from livelihood making activities, especially the ones that need them most could not easily access these important human capital resources that are now made available by the government.

Conclusion

In the previous chapter, ownership of human capital is found to be one of many criteria of wealth among Setiu fisher households. This chapter explains the different components of human capital, and explains the various ways that it is turned into an asset in support of livelihoods amongst Setiu fisherfolks. The value of human capital rests in the fact that it is readily accessible to every member of the household and can therefore be immediately used in livelihood making. Its various elements: labour, health as well as education, knowledge and skills are assets that reside within the human agent, and in the case of labour, are considered to be inexhaustible. Due to their advantage as capitals that are most intrinsically close to the human agent, they are also those that people have most control of, which usage could be decided upon in their effort to not only make but also improve their lives. Also, through the employment of their human capital, the first link is made between Setiu fisherfolks and artificial reefs: a highly regarded virtue, labour effort is a powerful capital that even allows the appropriation of fishing grounds, including artificial reefs sites; and based on their traditional and local marine ecological knowledge, Setiu fishers gain invaluable knowledge of artificial reef sites.

The chapter also highlights the direct and indirect manner that Setiu fisherfolks assess these capitals, thus approaching the human capabilities perspectives championed by Sen (1999). Human capitals are not only evaluated for the value that it generates towards livelihood making and improvement, but also for the way that they increase people's self worth. Thus, while labour effort is generously spent to secure or improve present livelihood status, investments are readily made into education which is perceived as a license to better land-based livelihood options, and when

possible into knowledge and skills to improve future prospects. However, despite the value given to health and physical fitness in livelihood making, health care is still a luxury for those with livelihood insecurities, and is a problem that could not be addressed through conventional approaches of healthcare provision and without understanding the complex position it has in people's livelihood making efforts. Socio-cultural perceptions must also be understood which would then allow measures such as awareness raising campaigns to be taken to improve communities understanding and receptiveness to modern heath care.

As for capacity building efforts made in the area of fishers' knowledge and skills, the same attention to local context of livelihood making is needed to ensure their receptiveness and effectiveness. Not only the existing, mainly traditional ecological knowledge of fishers deserves to be given due notice and recognition, efforts in expanding their skill and knowledge base must take into account their livelihood making routines. This is because for both aspects of human capitals, accessibility in terms of timing and location for either healthcare or training courses for example is one of the most important factors in ensuring their effective delivery and acceptability in these fishing communities.

Finally, the exploration into the value of human capitals in the livelihood of Setiu fisherfolks also extends our understanding of their dynamic aspects. Labour for instance, becomes a capital with added value when put to use with effort, making it purposeful as a tool used by the human agent or households to fulfill his/her or its livelihood objectives. It is a capital that is used in quantity or in quality to allow an individual or a household to compensate for other capitals that are not as easily accessed. Therefore, while

some put in more effort in order to save cash, others do so because they have weak social support and have to rely more on their own selves. However, while the latter is an excellent example of capitalizing on livelihood 'haves', the former reveals a disenfranchised view of one's own labour, which to the Setiu fishers is only good when it is put in use.

The willingness to capitalize on their labour to avoid financial expenditure is not unlike deciding to make time for healthcare a second priority to working; their own labour effort is a capital worth spending in quantity to not only save but also trade for traditionally less accessible resources such as cash and fishing gears. Hence, the traditional *Towkay-Awak* institutions which are fixed with 'invisible' interest cost to fishers continue to exist. But it must be made clear that for most fishers who are in this type of arrangement, the arrangement it is a well calculated decision that accommodates their preference for financially safer albeit less profitable option, thus far from the much criticized exploitative capitalist funding systems. It is however important to note that the *Towkay-Awak* arrangement has little appeal among the successful fishers who prefer instead to remain independent, especially financially. They too capitalize on their labour efforts but it is used to maximize their own gains in their livelihood activities, both fisheries-based and non-fisheries based. They also put great importance in fishing skills and knowledge which they strive to improve and innovate to get ahead of others. The most successful fishers and their households in Setiu demonstrate a high reliance on their various human capitals to excel in livelihood. This model of high human capital reliance is decidedly their preferred livelihood-making strategy.

In relation to artificial reefs, Setiu small-scale fishers are found to employ various elements or their human capital to benefit from artificial reefs. The chapter highlights:

- How these fishers are able to gain access to important natural capitals (good fishing grounds) as well as access to cash benefits (through payments of *kepala unjang*) through their labour effort, which could, when contributed during artificial reefs deployment be used to make claims of ownership on these artificial reef sites based on of the *unjang* concept
- their traditional skills and ecological knowledge that are used to identify good fishing grounds such as artificial reefs and optimally exploit fish resources at such sites
- the fact that Setiu small-scale fishers are not technology-shy despite their continued reliance on various traditional fishing methods, and keen to fully participate and gain new knowledge related to artificial reefs and welcome the opportunity to use new fisheries technologies in improving their operations. They however face practical, albeit simple, obstacles such as language barrier in using new technologies or unsuitable timing of trainings and workshop.

Chapter VI

Social capital, an essential fishing livelihood requirement in Setiu

Due to the availability of various subsidies and aids, the affluent households of Setiu consider laziness to be a primary reason for a household's failure in their livelihood making. This is similar to the findings by Scott (1985) where rich farmers of Sedaka also used the same term to describe the situation of poorer farmers. On the contrary, like the poor farmers of Sedaka, the less prosperous fishers blame their lack of resources, and not their lack of resourcefulness for their plight. This is because besides having the right attitude, physical ability, knowledge and skills, there are other livelihood assets that households of Setiu small-scale fishers require in order to make or improve a living. These consist of the non-human capital aspects of livelihood assets, such as the reliable social support, ownership of financial capitals, the availability of physical infrastructure and the ability to use natural capitals such as land and fishing grounds for livelihood making.

While human capitals are important livelihood resources for Setiu fisher-folks because they can be drawn upon to compensate for other forms of capital that they lack, the Setiu fisherfolks rely heavily on 'social capital' to access and acquire other resources that are needed to make a living. Among the many competing definitions for social capital, the more common definition within the livelihoods literature refers to relationships and networks within a group or society upon which individuals and households can draw (Ellis 2000). It is one of the key prerequisites for survival amongst fisherfolks (Allison and

Ellis 2001) and its incorporation into the assets component of the livelihood approach demonstrates "recognition to the important role played by social resources in livelihoods" (Francis 2000:56). Furthermore, "conceiving livelihoods as partly dependent upon households' social capital helps in the breaking down of the distinction between access and resources" (Bebbington, 1999:2022). In other words, paying attention to social capital can highlight the issue of exclusion in accessing resources (Francis 2000, de Haan and Zoomer 2005) because these sources of social capitals are also the arena where the "livelihood mediating processes" (Ellis 2000:37-38) take place. Due to the fact that social capital is reliant on the success in mediating processes, it is vital that fishers households devote time to build on their social networks and institutional arrangements (Ellis 2000; Francis 2000). This, for those who are capital-poor in other aspects, is their only lifeline (Bebbington et al 2004).

Using different social networks, people are able to build social capital stocks in the form of social bonds, bridges or links (Woolcock 2001). In Setiu, these three types of network-based social capitals are important resources for livelihood making in fisher households. Referring to 1) 'intra-community' ties between people in similar situations, such as immediate family, close friends or neighbours; 2) 'extra-community' distant ties with like people, such as co-workers and distant friends; and 3) ties that reach beyond the community, with people who would enable access to resources that are otherwise unavailable in the community; respectively, they result either from horizontal associations such as family and other exclusive types of social memberships or from vertical types of associations such as friendship networks based on work or neighbourhood and beyond. The former are typical bonding social capital assets that help secure resources that are important to the narrow-self, while the latter generate bridging and linking social capitals that help them reach for

resources that are otherwise inaccessible within the narrower horizontal networks (Woolcock and Narayan 1999).

This chapter exposes the ways that participating households in the two case study villages use their bonding, bridging or linking social capitals to secure or get ahead in their livelihood making. Thus, the chapter offers a different perspective on livelihood construction amongst fishers by providing a close account of the other livelihood capitals besides human capital that contribute towards vulnerability reduction and household capital accumulation, both from the perspective of those who have made it and those who have not. Paying heed to Woolcock and Narayan's (2000:8) caution on "the need to distinguish between the sources of social capitals and the consequences derived from them", I begin by considering two different networks of social capital: those linked through kinship, and those that draw upon friendship networks. More specifically, I examine the ways that these networks shape the ways that other capitals are used and accessed. I then consider the ways that these different forms of social capital networks overlap with other sets of local institutions, including village-based norms, formal fishing institutions, and *Towkay-Awak* relationships. By doing so, I am able to highlight the way that social capital is used to maintain existing resources and to access and acquire new ones without ignoring the meaningfulness of these different ties for the human agents involved. The findings suggests that social capital is a critical mechanism for reappropriation of other forms of capital as well as a very intimate social relation which is imbued with a range of emotions, including affection, responsibility, and pride.

Network-based social capitals of Setiu fisherfolks

While researching the fishing communities in the North-East Malayan states, Firth (1975:291) noted that "Malay community life in the North-East states is still very strong, and the social values based upon it are of great importance in dictating stands of consumption". Four decades later, his observation would still be considered largely valid in the case of the Setiu fisherfolks. However, due to the new social and economic processes at work, some elements of change have also come to influence community institution and livelihood. Firstly, while the value of village community living has slowly eroded, kinship remains an important source of social capital. As a result, bonding social capital derived from family networks is no longer every household's main resort in livelihood making. Secondly, networks based on vertical associations such as friendship and fishing business patronages have become increasingly important social assets for Setiu fisherfolks, demonstrating a growing preference for bridging and linking social capitals instead.

Bonding social capitals from extended family network

People derive bonding capitals principally from their family networks, although similar social bonds are also built between close friends. As the main capital used to access other types of capital namely various elements of human capital that are indispensable in livelihood making, cash credits and equipment loans, this type of social capital takes a central role in the lives of Setiu fisherfolks.

In a Setiu household, the family, as their core social unit, is an important source of bonding social capital for participating households. This is especially so when the notion of family for the Malay community extends to

include both blood relations and those related by marriage. Hence a household often consists of not only a couple with their children, but also of other relatives living under the same roof. Here, the concept of extended family applies as men and women generally marry a relative, usually a cousin from either the same or another village in the region. A newly married couple's choice of location to settle down is based mainly on the livelihood opportunities that are available to them, but may depend on certain familial obligations that tie one of the conjugal pair to stay with his or her parents.

In the case of the surveyed households, all the couples interviewed initially began their married life as part of the husband's or wife's parents' household, until the time that they could move to their own home and form a distinct household. Families thus provide access to essential support until the couple is able to be on its own. Even when they establish their own separate household, it is still acceptable practice to make claims to its family network though kinship obligations. Firth (1975) esteemed this to be a highly dependable livelihood safety net as it provides for various kinds of assistance at a kin's hour of need; the range of assistance provided by family members varies from food to labour, and from financial to emotional support.

However, marital relations may not be the focal tie in certain households. Sibling relations are also an important bond from which one derives social capital particularly when divorce is allowed in Muslim families. In a study in Africa, Francis (2000) argues that strong sibling relations are in fact the preferred structure for younger generation Africans to whom marriage with its rigid structures is no longer attractive. Although this does not yet seem to be the case in Setiu, younger siblings often do stay in the household of their elder siblings, who usually assume the responsibility to provide for them

in place of their parents. Other relatives, such as grandparents or uncles and aunts, may also take on the role of caregiver, especially when children are unable to depend on their parents for support due to poverty, death or divorce. In short, the family is a structure than changes often in size and composition, and subsequently so does a household as its members follow their life cycles. Reproduction would mean input for the household, while marriage may mean input or output as family members either leave or bring a spouse to live in the family home after marriage.

The importance of kinship in accessing human capital among fisherfolks North-Eastern region of Peninsular Malaysia has been well documented by Firth (1975). In his classic study *Malay Fishermen: Their Peasant Economy*, he noted that the main type of fishing that was with either the *takur* or the *payang* nets required a large number of fishermen to work together as a team. In his study it is found that family ties were the main capital used by the head fisherman to assure adequate manpower for his fishing group. But these traditional types of fishery were unable to compete with the newly-introduced modern fishing operations using modern gears such as trawl nets. Their numbers began to dwindle in 1960s and by early 1980s, there was none operating in Terengganu waters anymore. The decline of the traditional commercial fishery coincided with the emergence of big off-shore fishing operations in the bigger fishing ports in the region such as Kuantan, Kemaman and Kuala Terengganu. This led to an exodus of labour from Setiu to these fishing ports, which usually began with the recruitment of a *Tekong* by the *Towkays* based in these ports. The *tekong* has the responsibility of recruiting the fishing crew, which he carries out in the same manner as in traditional group-based fishing recruitment: drawing from his bonding social capitals, his kinsmen were the first choice line-up, followed next by other fellow villagers,

especially close friends and neighbours. This practice is still at work in the commercial trawl or purse seine net operations as well as other smaller scale fishery whenever the need for labour arises. Kinship-based social assets still prove to be the most reliable source of labour in the fishery sector as well as other types of livelihood activities such as tobacco farming or river gleaning.

For Setiu households, kinship also plays an important role in accessing or acquiring financial capital. In this research, we refer to Ellis (2000: 34) definition of financial capital as "stocks of money to which the household has access". Among Setiu fisherfolks, having financial capital, in the form of cash savings, gold jewellery and credits is an important factor in improving one's fisheries-based livelihoods. As discussed in chapter V, it is the ownership of financial capitals that allows the *orang senang* to opt for fishing techniques with higher income yields. Compared to the less wealthy, the more affluent Setiu households also feel less vulnerable because they have savings. Savings, however are only possible for those who have income surplus. For the less affluent households, having quick access to cash loans whenever faced with financial difficulties is no less important. For these fisher-folks, this particular capital is rarely acquired through formal financial relationships. Instead, they are procured by drawing from their social capital, especially family relations:

> Jarina: (...) And you manage to make enough to sustain your family?
>
> Pok M.N: Yes, but as we could afford to. I mean, there were times when we were short so we would borrow some money first and pay it back later.
>
> Jarina: Who from?
>
> Pok M.N: Our relatives... my mother.

Jarina: That means when you are facing financial difficulties, you have them to go to?

Pok M.N: Yes.

(Interview at household 1AMN on 21 May 2009)

As explained by Scott (1985), there is great expectation upon kinship among Malays, and this is reflected in the complexity of financial relationships. Family and relatives are expected to be the first to lend a hand or a handful of cash to those in need. The flexible and inclusive structure of kinship means that a family's social reputation is not limited only to one nuclear group or conjugal pair, but to the entire family. For a family, thus, borrowing from a close relation is a safe option, for that relation has an incentive to keep the fact of the hardship to him or herself. There is, as aptly observed by Scotts (1985), nothing more embarrassing than being turned down when making a request. Therefore, a relative approached for a loan will only withhold a helping hand when he or she is truly unable to help. Otherwise, he or she would be criticized by fellow villagers for not taking care of his or her own kin despite having the ability to do so. Borrowing from a family member also saves one the embarrassment of not being able to pay one's debt, as a loan from a family member is given unconditionally and is something that one never mentions openly.

Nonetheless, reliable kinship-based loans can also be subject to vulnerabilities that are quite different from those that might be encountered when borrowing through more formal institutional structures. For instance, the above fisher's mother was also his younger brother's main source of cash loan, and her death in July 2008 caused much uncertainty for Pok J and his

wife, who told me that they do not know who to turn to now in their hours of need.

Households that rely on their children's cash assistance also face a similar uncertainty once a grown child marries. Francis (2000) noted that children's marriage is one of the processes that affect a household's wealth position, as remittances that help to either accumulate or maintain the family's assets are usually stopped once the children have their own family to care for. As discussed in the previous chapter, Setiu households seem well prepared in case of such an eventuality because, once married, children are considered to be responsible for their own family unit first. Therefore, in the case of monthly remittances, parents with income-earning children would often say "we don't ask, but don't refuse either when they give". But it doesn't mean that they do not hope it:

> Mok T: But he still continues because we have to make a living and our children are still studying and need financial assistance. If it weren't for those two, we would not be working anymore, especially the youngest one who is studying at the university. But his brothers have been helping out because we two can't really make it on our own. They send him money.
>
> Pok L: They would send money immediately when we ask them to.
>
> Jarina: So your children have been helping you financially?
>
> Pok L: You can say that we could even chase them for it. Sometimes, we would call them to ask why the money is not in yet and they would bank it in immediately.
>
> Jarina: They send every month?
>
> Pok L: Not really.

Mok T: We just need to call them to say that their younger siblings need some money for their studies and they would send it to us.

Pok L: And whenever we ourselves are in difficulty, they would give.

Mok T: Whenever they all come home for Eid for example, I would get RM500 or RM600 from his children.

Jarina: So you turn to them whenever you are facing tough times.

Mok T: Yes. Maybe not much (from each) but there's many of them so it's alright.

Pok L: If they can't give a lot, they give a bit. At least RM50 each.

(Interview at household 1BPL on 5 may 2009)

Having access to remittance from children makes a great difference because a supplementary fixed income helps reduce a household's financial insecurity, especially those that depend mainly on fisheries. Having children who are financially sound on whom one can rely on for emergency cash deposits when the household is faced with critical financial woes gives a higher sense of livelihood security, as long as the children are able to provide such support.

Setiu households also raise a lump sum amount of cash without resorting to credit by *main* (which means playing). *Kutu*. Also referred to as *Kut*, this is an ingenious trust-based group cash pooling rotation system that is practised in many developing nations (Ghazali 2003). This informal interest or charge free system allows members of a Kutu group to contribute a small fixed amount of cash on specified collection intervals (usually on weekly, forthnightly or monthly basis) over a longer period of time that represents a

kutu cycle[127]. But instead of having to wait until the end of the *kutu* term to obtain the full amount contributed, a member is able to obtain the total amount collected from the group per collection time. As there is no written agreement for *Kutu*[128], the *ibu kutu* who is in charge of collecting the money usually only offers membership to a group to trusted people, especially family members.

Though these kinds of financial relationships might be evident in any industry, there are also ways in which kinship-based social capital facilitates resilience that is quite specific to fishing. For small-scale fishers in Setiu, a day stranded on land due to equipment breakdown or loss means a loss of income. When one's own (important) piece of fishing equipment such as boat or engine breaks down or gets stolen, a loan is usually given by relatives who are not using theirs[129]. Pok Y from Rhu Sepuluh, who lost his engine due to theft, explained that he was grateful to be able to borrow his nephew's engine to go out fishing with. As his household relies mainly on his fishing for imcome, with his wife earning a modest income as a babysitter, the loan of the engine was essential for meeting basic livelihood needs. A few fishers such as Pok Su and Pok J of Rhu Sepuluh and J of Gong Batu benefit from their father's fishing equipment, thus saving them a lot of physical capital cost when they first returned to fish locally. J's elderly father Pok W says that he would willingly

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[127] The length of a cycle depends on the number of *kutu* shares 'at play', where a share represents a fixed amount of cash that has to be paid at each kutu collection interval. Note that the number of shares that a player can take is not restricted. To illustrate, if a group has ten shares taken, then payment will be collected from each member for ten times. Each kutu share owner will be given the total ten collected kutu shares when his or her collection turn comes, which is usually decided through a draw, with the exception of the *ibu kutu* who is usually allowed to either take the first collection or chose any turn as a token of appreciation for her coordinating effort.

[128] At most, a list of the members and the amount that has been commited to by each of them will be held by the *ibu kutu*, literally meaning 'kutu mother'.

[129] Some people own boats, engines and other fishing equipment but do not use them either because they do not fish locally or have other day jobs.

upgrade his existing equipment for his son to use, while Pok M.O is able to acquire a new engine thanks to the financial help of his son. This social capital therefore flows both ways, and also provides an incentive for investing in material capital that might benefit the family more generally.

It is important to point out, however, that social capital is not always without "downsides' (Woolcock and Narayan 2000). Indeed, kinship networks might work to protect social capital for the benefit of family members. This is firstly illustrated in access to important elements of human capital that are important to fishing operations such as traditional local ecological knowledge and skills which fishers acquire through their kinship related social capital bonds. Because young fishermen learn the ways of the trade by following senior and experienced fishers at work, it is therefore an advantage to be a kin to a master fisher who usually prefer to pass down the knowledge to a member of the family, thus excluding those who are not. Similarly, social capitals derived from such horizontal associations limit access to natural capitals such as farming land allowance and fishing grounds. For the former, it refers to the government provided usufruct farming land that some households have been granted with. For those who had stopped planting crops on their plots, they do not release[130] them but kept them for their children's potential use. For the latter, it refers to access to good fishing locations such as *unjangs* and artificial reefs. Due to the perceived depletion of fish resources, a good fishing location is an important natural asset that some would share sparingly, and access to such information is usually reserved for the family only. This is supposedly the advantage that one fisher in Rhu Sepuluh had in relation to artificial reefs sites:

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[130] Farmers are given plots of land to work on by the government according to a common law arrangement, where everyone presumes ownership based on use. Therefore, even if they do not plant anything on the land, others will not use the land without the former's permission. By allowing the land to be used by others, they release their usufruct rights to it

Pok I: Well, I don't know whether it's true or not but people say that he is the one who has been cutting the buoys that mark the artificial reefs sites. He logs the site into his GPS. He's got the coordinate of every artificial reefs site in his GPS unit. When artificial reefs are deployed, they come with many buoy markers. But when we go there, the markers are gone.

Jarina: But doesn't the fisheries agency, like the Fisheries Dept or LKIM inform you on their deployment activities?

Pok Ipin: They only inform the (local) office.

Jarina: Doesn't the (local) office inform you about it?

Pok I: No. The one who knows is his own brother. CN's brother. His brother gives him the number. People checked in his boat and found many buoys. We were told (about it) by a *tekong* of a purse seine boat.

Wife: That's why he catches a lot.

Pok I: His *bubu* is everywhere at the artificial reefs site. At other people's artificial reefs or not, he puts his *bubu*.

Wife: He puts them everywhere.

Whenever this mid-scale[131] commercial fisher's name gets mentioned during interviews in Rhu Sepuluh, it was generally claimed that his success in his *bubu* fishing operations was only because he knew exactly where artificial reefs are located to deploy his *bubus*[132], thanks to the information passed to him by his brother who is the officer in charge of artificial reefs in the Setiu District LKIM office. But he apparently doesn't share this information, and as alluded

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[131] CN is considered a mid-scale fisher because although he has an A license, he operates his large-scale bubu fishing using an in-board boat

[132] Artificial reefs are popular for demersal fish species such as Grouper and Sweet-lip that are targeted by *bubu* fishers.

to in the above interview, is even suspected to be the one responsible of cutting off the buoy markers placed at artificial reefs sites after marking them with his GPS unit so that others will not find the artificial reef sites. Indeed, CN and his brother's presumed refusal to share these valuable information makes him a bad fisher as far as the other fishers are concerned, because a good fisher would be willing to practise a more inclusive information-sharing, by reaching out beyond the boundary of kinship to include at least to a few 'friends at sea' if not to larger fishing communities. It is to such friendship networks that I shall turn to next.

Emerging social capitals from friendship-based networks

Besides kinship ties, friendship is another type of social network that Setiu fisherfolks rely on for reducing vulnerability and improving livelihoods. However, depending on whether they are based on horizontal or vertical associations, two distinct types of social capitals could be derived from friendship-based networks. Firstly, bonding social capital similar to the one issued by family-based networks come from networks between close friends (who are treated more like family) and secondly, bridging social capital is evolved from networks of friendship that are based on similar circumstances such as work or neighbourhood etc. Be it one or the other, these friendship-based networks appear to be becoming increasingly important, potentially indicating a change in the society from the traditional format of kinship-based set up towards new models of reciprocity. In the case of Setiu fishers, their 'friends at sea' have become an important network to which they can turn even in the hour of need:

> J: [When we're short in cash], we'll just eat what is already in the house. Just buy rice. And for fish [for food], we would go get some from the

> others [fishers], just a kilogramme, to eat. They would not take our money if we took just a kilogramme. And that would be enough to last us for two days. So we have to be thrifty. I usually would ask from M and Pok L.I, whom I could depend on. Whenever they come back from fishing, we'd go look for some fish. Our intention is not to take for free but when we leave them the money, they would return it back to us the next time we meet. So they don't want our money; they want to be our friends.
>
> (Interview at household 1AJ on 23 May 2009)

Extended in the name of friendship, these loans are similar to bonding social capital derived from kinship-based networks in a way that it provides a safety net during difficult times. However, other looser friendship-based networks among fishers focus more upon sharing human capital of labour. Although the type of small-scale fishery practised in Setiu no longer requires collectively-operated fishing, there still exists 'fishing parties' among small groups of fishers. Together, a fishing party sets out in the morning and return later in the day, and its members are even found to spend their free time together, either at coffee shops or at the *wakaf*[133] (see Figure 29 Fishers gathering at a wakaf in Rhu Sepuluh) by their fishing base.

They do not carry out their actual fishing together as each fisher still fishes alone or with his crew on his boat at a location where he chooses to fish, either within view of each other or much further apart. The fishing party will separate at a specific point at sea which everyone will return to when it's time to head back to their base together. But their need for each other actually

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[133] A shelter built for public use.

begins on land. Because fishing boats in Rhu Sepuluh are left directly on the beach, physical help is required by Rhu Sepuluh fishers to launch their fishing boats when they set out in the morning (see Figure 30), as well as to pull the boats further up the beach when they return.

Figure 29. Fishers gathering at a wakaf in Rhu Sepuluh

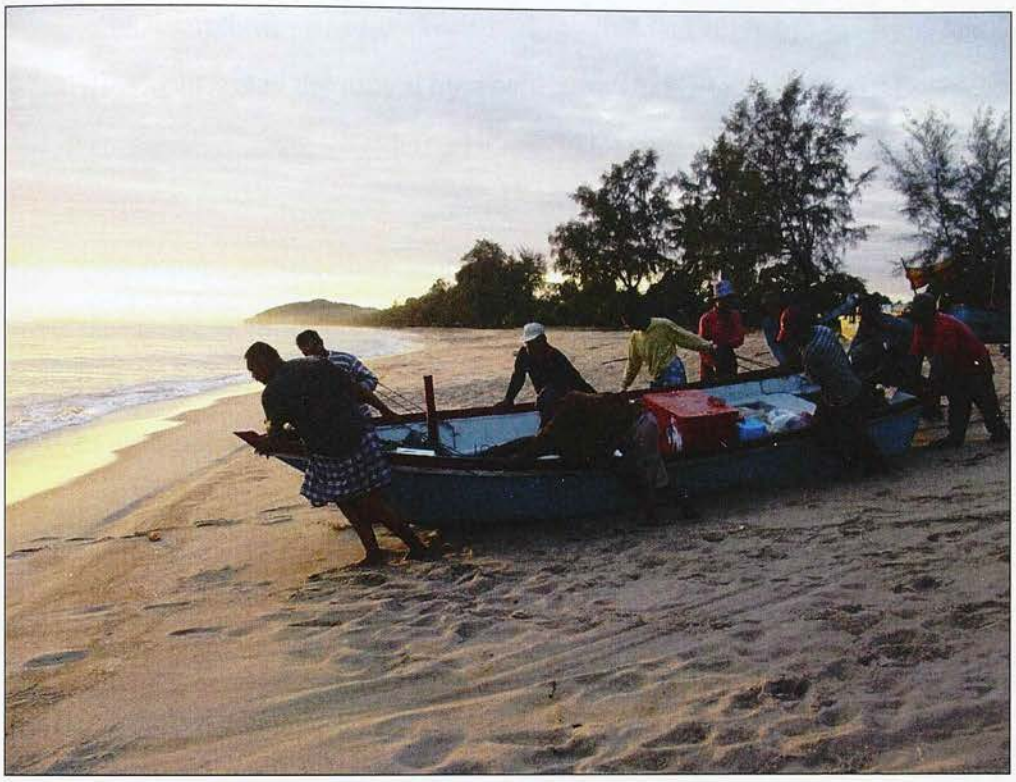

Figure 30. Rhu Sepuluh fishers cooperating to launch their boat in the morning

Fishers go out and return together so that they could help each other in this task. In this sense, the social claim is made on members of the fishing party to gain physical labour assistance, an indispensable human capital. For gillnetters who leave much earlier during the day (at the break of dawn) and carry heavier load in their boats[134], the need for assistance is even greater:

> Pok MO: You have seen yourself how hard it is when you see us come back in the afternoons. Pulling in the boat, carrying the nets on to the beach first before landing the boat properly. At least at that time in the afternoon, there'd be people who could help us to pull the boat. But not

[134] Gillnet fishers carry usually bring two hundred sets of net, weighing at least 50 kg in total when they go out to fish

> in the early mornings when we set out to sea. There's no one else. I have once set out with just Sahak. Just the two of us. So hard it was. No need to tell you the details as you've seen it yourself every day. (Interview at household 2BPMO on 31 Oct 2008)

As expressed in the above interview, boat launching and landing are no easy tasks, and without physical assistance to carry them out, they have no choice but to stay on land. For this reason, work-based friendship-networks that generate bridging types of social capitals are important, if not indispensable to Rhu Sepuluh fishers.

While it is quite difficult to get help from non-fishers to launch their boat in the morning, help however could be expected from non-fishing fellow villagers upon their return, due to the traditionally upheld *ikan makan lauk* reward that awaits the helpers. The reward of *ikan makan lauk,* which literally means 'fish for meal' is still practised in Rhu Sepuluh. While it was also a form of payment to the fishing crew in large-scale fishing operations in the past[135], it is today only extended to those who provide small assistance to fishers, such as pulling returning fishing boats onto the beach:

> Pok Y: To the fishers, this is the tradition. Those who help pull in the boats are offered fish for their meal. There are those who don't help but ask for fish. Of them, we say "to pull the boat you don't want, the fish for your meal, you want". We of course we never say this to their face, but behind them. But normally those who wish to get free fish for the day's meal, who don't want to buy fish, they would wait on the beach to

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[135] For full description on the "makan lauk" practice, See Firth (1975) pages 254-256

> pull the boats. They take two or three fish from each boat for their help and after helping four boats, they have enough fish to bring home already.
>
> (Interview at household 2BPY on 20 Sep 2008)

The *makan lauk* reward is a tradition that is still currently upheld in Rhu Sepuluh because the local fishers still pull their boats up the beach upon returning for the catch as it was done in the past and still use physical labour to do so[136]. Therefore, people can still offer assistance to help with the task and expect to be rewarded with some fish as it has always been done in the past. In Gong Batu however, fishers moor their boats at the jetty by the river and do not require any help to set out or to return. The *makan lauk* reward is therefore no longer practised.

But the availability of such helpers is not guaranteed every time one returns from the sea either. Fortunately for Pok M and Pok Harun, they could always rely on the help of their *bubu* fishing friend Pok M.J with whom they are always seen together. They are the only line fishers from Rhu Sepuluh who do not venture far out to fish and usually return earlier - around noon - unlike the others who only return in the late afternoon. Because both are not at the peak of their health anymore, this would normally mean that their boats could not be hauled up the beach, unless people happen to be waiting to help them in exchange for some fish. But thanks to Pok MJ, a *bubu* fisher who also returns early, they are able to pull their boats in using his car (see Figure 31; photo of

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[136] The LKIM had built mechanical pulleys at every landing base in the Penarik area. Unfortunately they have stopped functioning, supposedly due to rusting.

car pulling boat)[137], thus creating an interesting social capital claim for physical capital instead of what would have been human capital.

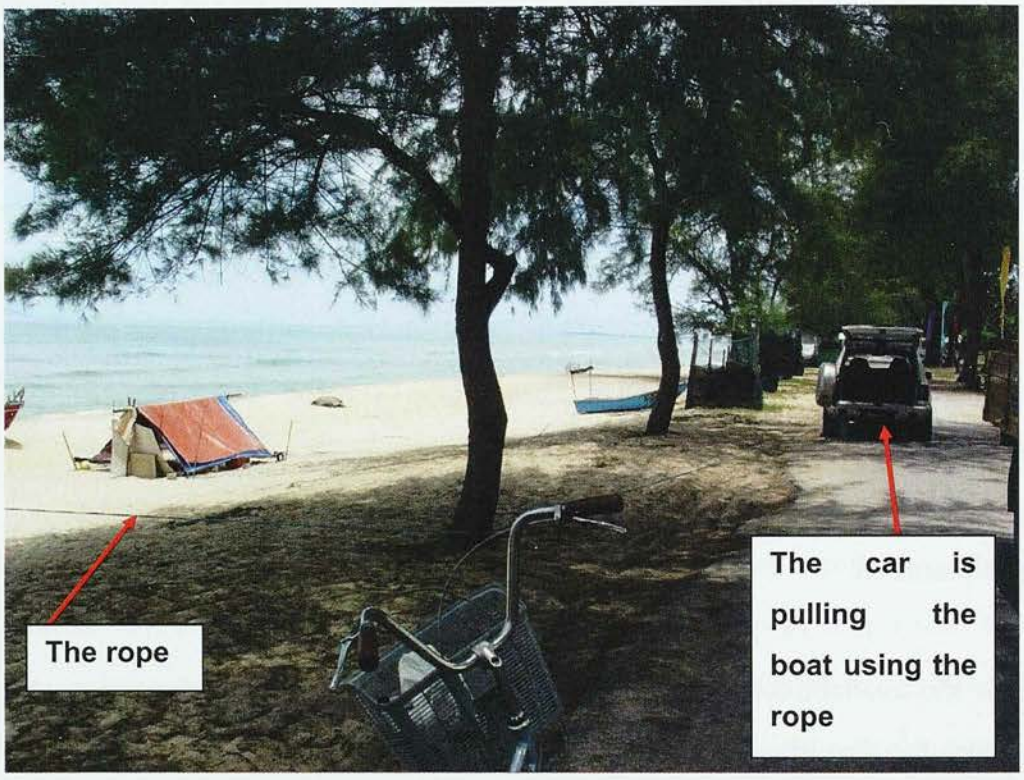

Figure 31. Using a car to pull boat

Fishing resources, mainly of natural and physical aspects, dictate the need to form fishing parties as well as dictate the forms of network that fishers form. Due to this, the formation of fishing groups is rather short term in Gong Batu. While the Rhu Sepuluh fishing parties function throughout the normal fishing season (due to the reasons explained earlier), those in Gong Batu are formed only during the squid season. This is firstly because the Gong Batu fishers do not rely much on their fellow fishers for safety as they rarely fish far

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[137] Pulling boats using an automobile is apparently the latest local innovation in Rhu Sepuluh. During the fieldwork, I witnessed boats being pulled up using lorries, four wheel drive vehicles as well as sedan cars.

from the coast while their colleagues from Rhu Sepuluh venture further off the coast to fish. Secondly, they do not need help to launch or pull in their boats either because theirs are conveniently moored at the riverside jetty. As a result, these fishers are more individualistic in their fishing operation thantheir Rhu Sepuluh colleagues, and generally only form fishing parties to participate in collaborative search for squid nests in the area. Yet closer examination of the fishing networks in Gong Batu reveals that there are fishing 'co-operations' which are limited to the sharing of information on fishing locations with their 'friends at sea':

> Pok J: (...) With squid, we'd set out together and assemble at let's say the old AR. Then we jig for a while there and if there's none, we'd disperse to different directions to look for better location
>
> Jarina: What about information using the telephone? A lot of fishers bring their mobile phone nowadays, right?
>
> Pok J: Well that depends... if it's a good friend, he would call. But otherwise, they would not. I am now relying on Manaf. Whenever he finds fish, he would definitely let us know. Let's say he and I set out to fish in the east side and then he decides to try in the west. So he goes off but if he finds squid there, he would call me. That's M. But no one else does. Pok L.I would inform me as well. But not others. So with these folks, if we find [a good spot] we would let them know too. So the three of us have a good cooperation going. Not that we do not befriend the others. We do too but they would not let us know if they found a good spot for squid. If they could hide the spot they found while at sea, they would!
>
> (Interview at household 1APJ on 23 may 2009)

This type of collaboration has been well explained by Acheson (1981) who argues that fishers share information more freely when it does not concern resources that are sedentary. For this reason, gillnetters are more likely to share their discovery of good fishing locations because of the highly mobile nature of their targeted catch while line fishers who target more sedentary types of fish would be less willing to openly share their information. This is because information sharing is in fact a risk-sharing strategy for fishers; finding fish is the most important task for fishers and by sharing their findings with others, they earn access to a wider pool of information, which can significantly reduce the operating cost spent to search for fish. For fishers that target mobile fish species that cover a larger marine space, wider information sharing increases the pool of information on potentially good fishing spots is commonly practised because the probability of finding fish at the same spot is not high anyway. There is therefore no harm in sharing the information with many people. In this sense, the gillnetters are similar to the fishers of New England who St Martin (2001 and 2006) identifies as a community where information on fishing resources are shared, rather than comprising of opportunistic individuals.

On the contrary, line fishers and squid fishers' targeted catch could remain at the same location for a longer period. For this reason, they would seek to restrain access in order to ensure availability of the resource for themselves. However, it would still be wise to share their finding with a selected few others who will in return reciprocate by sharing their information in the future. Therefore, although there may not be long-lasting fish parties as those formed among Rhu Sepuluh fishers who require help from fellow fishing party members for their boat launch and mooring and to be safe at sea, there are in Gong Batu 'communities of fishers', especially among gillnetters as well

as the more restricted clusters of 'friends at sea'. From these friendship-based networks, Setiu fishers derive bridging social capitals to access important natural capitals such as useful information on fish locations or artificial reefs sites:

> Jarina: Do you share information on places that they've found to have a lot of fish.
>
> Pok MO: Most people don't (the wife laughs) but I do. Most people are like that. She is always complaining when I do. But I tell anyway. She'd scold me "why did you tell people that you got fish there?". But I tell because I want to keep my friendship with the others. (...)
>
> (Interview at household 2BPMO on 31 October 2008)

Setiu fisherfolks are found to go to great lengths to maintain their friendship with co workers and neighbours, which is the next most important source of social capitals after family relations. The bridging social capitals from these networks are drawn upon to access resources that are otherwise off their limits. The above interview alluded to the role of fish related information-sharing in maintaining friendship. In the name of friendship, many otherwise 'reserved for family' privileges are extended to good friends. Such a privilege is the permission to fish at one's *unjang*, which is something of great importance for *unjang* owners due to reasons that will be discussed further below. By allowing someone else to have access to this exclusively owned natural capital, the *unjang* owner willingly forgoes an important resource. Giving *unjang* fishing permission is therefore a significant mark of friendship from one fisher to another. The importance put on a 'friendship at sea', which usually begins as opportunistically motivated networks for human capital (physical assistance during launch and return, safety surveillance at sea

etc), is because it often develops further into a relationship that is similar to kinship. Therefore, the social capital that one can derive from it does not only facilitate access to natural capitals at sea but extends on land, in helping to gain access to financial and physical capitals as well. In fact, a friend at sea often becomes one's most dependable livelihood-making support. Between them, 'friendly loans' which are small credits to assist a friend especially in purchasing a productive equipment are given interest-free, which is argued by Firth (1975:164) "[to be] considered as an investment of liquid capital as the loan may yield a return through the general social benefits which accrue to the lender, or through his association with the borrower in some enterprise, which is facilitated by the latter's use of the capital". Although most fishers claim that their friends are only an alternative source of cash loans after their own kin, one fisher admits to prefer borrowing from friends instead of resorting to family and relatives:

> Jarina: From whom do you borrow?
>
> Pok NS: From my friends. Never from my siblings. Her brother for example, I don't like to burden him or the family. So when I ask to borrow money, I never tell the family and my friends never come to the house to pass me the loan. I tell them not to. They would pass it to me when we are away from the house. But as soon as I could repay them, I do. That's why it's not a problem for me (to get loan). With family, it's complicated.
>
> Jarina: You feel more comfortable borrowing from friends.
>
> Pok NS: Y es.
>
> (Interview at household 2APNS on 7 November 2008)

Pok NS trusts the discretion of his cash-lending friends more than he does his own kin, and his friends he claims can always count on him to repay his debts. None of his relatives live in the area anymore, but he claims that a sister who lives in the state capital could be relied on for credit. He does not like to ask for her help, however, and would rather turn to Pok D for example when he is cash strapped because asking for small amount of cash from someone at a distance would require substantial transaction costs and therefore appear impractical. While he admits to borrowing from his wife, he explains that he would not ask from her relatives who live nearby because it would make him look bad. But he puts great emphasis on paying back his friends because it is an important safeguard of friendship between him and the lending friend. In return, his friend would never directly ask for his loan repayment as a sign of respect and trust to him.

Decidedly, the friends from whom fishers borrow are not just any friend, but are a trusted few with whom they usually fish with. There exists in fact small 'fishing friendships' of two to four fishers who are frequently seen together even when they are not fishing. Between them, a strong bond exists, especially in fishing related matters. They are found to willingly share their physical capital resources with their fishing friends. Pok S for example shares his ration of subsidised petrol fuel with Pok Ya:

> Jarina: So which fuel do you use to go fishing?
>
> Pok Y: The expensive fuel (normal rate). But sometimes Pok Sahak will give some of his subsidised fuel to me. But it all depends on his usage. If he feels he has extra, he'll give me some but if he feels that he would use all, I'll have to buy the expensive one.
>
> (Interview with household 2BPY on 20 September 2008)

Fuel is the largest operation cost for these fishers. By sharing his subsidised fuel, Pok S reduces Pok Y's operating cost significantly[138]. This is because the latter doesn't own a fuel card, and therefore has to buy fuel at its higher normal price. This gesture, which is much appreciated by Pok Y, is nurtured by the friendship between the two fishers who are always seen together during their free time, and it further reinforces their friendship-based collaboration.

Not all members of the fishing community however draw upon the existing social networks the same way. Unlike the other categories of fishers, *orang senang* fishers do not seem to affiliate themselves with any fishing parties. The only exception is Pok MJ who is known to be a very helpful person in Rhu Sepuluh and is proactive in trying to get the other fishers to collaborate in potentially more lucrative fishing ventures. The others in the *orang senang* category are instead rather individualistic fishers who admit to prefer "staying at home to rest or do some other chores rather than socializing with others at coffee-shops" during their free time. During my visits, they were all found to be in a middle of something commercially productive. They also prefer to work alone, with the exception of Pok A.T who as a *Tamban* fisher works better with a crew[139]. Although PokR2 fishes with his brother when the fieldwork was carried out, he however explains that it was only to help his brother earn his living. Otherwise, he would actually prefer to fish alone too. Even M, who is probably the *orang buleh* fisher with the greatest potential to be an *orang senang*, admits to be a solitary fisher and prefers to leave his fishing spot whenever another fisher comes to fish nearby. Whenever I saw him at the

[138] At the time of fieldwork, a twenty-litre barrel of petrol costs RM58 at normal rate but only RM 23 at the subsidised rate.

[139] Although *Tamban* nets can be used individually, the operation becomes more effective when carried out in twos.

coffee shop by the Gong Batu jetty, he would be sitting alone in a corner "just to listen to others exchange information on fish" he says. Although he doesn't contribute any comment unless asked, the information he gives is considered reliable by his peers, unlike those given by many others who are "all talk but no substance". It may well be that the more successful fishers do not spend much time and effort to nurture their social network with other fishers because they rely very little on others but only on their own resources, especially their human capital and self-raised financial capitals. In short, they have less to gain from such social networks and therefore there is no need to invest time on nurturing social networks the way the others do.

However, *orang susoh* fishers could not dispense with bridging social capitals without incurring cost to their livelihood making efforts. Pok NS for example is an *orang susoh* fisher who seems to have rather limited social network. Although known to be knowledgeable in fishing and honest, he is said to be someone who is *berkira* or calculative. He admits that he is one who would "strongly claim what is his but never take what is not". But this makes him rather unpopular among his fellow fishers because, as documented by both Firth (1975) and Scott (1985), such an attitude is considered a great character flaw to the Malays who believe in nurturing relationships between them through unconditionally-given favours. It may have had some repercussions on his household, where they have not benefited from any form of assistance eventhough they are one of the most vulnerable households in

Rhu Sepuluh[140]. In order to avoid falling into the same predicament as someone like Pok NS, most *orang susoh* fishers will make the effort to nurture their social relations:

> J: You know, during the off season, I wouldn't go frequenting coffee shops. When I'm fishing I do go, just to buy food to bring back home. People hanging out at the coffee shop usually just talk rubbish and nonsense. I do go to the coffee shop at night. Every night she always nags me about it. But it's just to have a drink with friends. Pok Usop's son. If I'm not there, he's surely call me to come. He's sometimes even begs me to come. That makes me feel a bit guilty. But he doesn't have children, so it's ok for him. If I don't go, well... we need to take care of our friends' feelings too. We would go to that shop near the Fishermen's Association and we'd have a chat over a cup of coffee. That's all. After that I'd leave or go to the *wakaf* to chat with the others. (Interview with household 2DJ on 8 November 2008)

From their social networks based on kinship and friendship, Setiu fishers and their households have at their disposal social capitals that provide them access to various livelihood resources. But while bonding social capitals from family and close friends are important for elementary resources such as financial security, access to labour and knowledge as well as physical and natural resources, bridging social capitals from friendship based networks are

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[140] Pok NS is in his late seventies and has failing eyesight which makes it hard for him to fish when there is limited light. But he still has to fish to support his household, which consists of his ailing wife as well as few grandchildren that he fully takes under his care following his only son's divorce. The couple has only two children who both are unable to help him financially. Their son is unable to give him financial assistance even in raising his daughters because he only works as a lorry driver in the national capital and has other children to care for (issued from his current marriage) while their daughter who is now sheltering in what used to be their tobacco smokehouse with her husband and three children.

necessary for a smooth running of livelihood-making activities by providing access to information, ensuring safety at work etc. While the former helps a fisher get by, the latter improves his chances of getting ahead. But these traditional forms of networks are not the only sources of such capitals. In the next subsection I examine the formalized types of associations that could be also used by Setiu fishers to serve the same purposes.

Local institutions in Setiu fishing villages

Institutions are found to comprise of the formal and informal rules, and codes of conduct that regulate human interactions (North 1990). Likewise, in Setiu, fisherfolks are governed by three local institutions, namely principles of village-community living, local fishing codes of conduct as well as the *Towkay-Awak* fish marketing mechanism. Together, they form a regulatory framework for the Setiu fishery sector.

Village-based claims

Beyond the family and working life, Setiu fisherfolks as we have seen also have a strong sense of village life. There are thirteen villages along the Setiu coast, and the border between one village and another is known by those who live in the area. The following discussion focuses on village-based livelihood capital claims as a more formally institutionalized version of social capital. From the livelihoods perspective, the village is in fact an asset because the Setiu fisherfolks use their village membership to claim important livelihood capitals.

Village based claims are indisputably a bonding type of social capital: it is an exclusive association that provides claims based on reciprocity and moral obligation. The expectations of community life in the village are expressed by the spirit of *saling bantu-membantu* (reciprocal assistance), where each member

is expected to give what one can to help those in need, and to participate in *gotong-royong* (communal labour) when called to do so. In fact, one's social standing in the community depends on the fulfillment of this expectation, as aptly observed by Scott (1985) in his case study village of Sedaka. He noted that while the financially affluent are expected to help through financial means, those who are not financially able must do their part by providing in kind contributions, especially labour. Likewise, the financially less affluent households in Setiu could, through effort, acquire or maintain their good social standing in the village community by promptly providing assistance to others in the form of physical labour and time. In fact, their contribution in these areas could even buy them a better social position than the wealthier households in the village as illustrated below:

> Kak Z: (...) we know that we don't have wealth to give, but all we have is our own energy (effort). That's why whenever we are ill, people come and pay us a visit, remembering that when we are well, we have helped them. In the village way of life, whenever someone dies or falls sick, we must go and visit because people will remember. Not that we do it so that we'll be remembered but it is how it is. So when we are unwell, people would think "I must pay Mek Z a visit because she always visits whenever others fall sick. That's considered our wealth too. It's not just money and things, but people's appreciation towards us is our wealth too, a benefit to us.
>
> (Interview at household 1AAM on 23 July 2008)

For the wealthy household with financial means, refusal to assist those with financial needs could result in a loss of social status for the family. Pok R2 explains that he and his wife haven't much choice but to give cash loans to

fellow villagers when requested, despite knowing that they would probably never be repaid. Affluent households have to, whether they like it or not, adhere to this social obligation to maintain a good name.

In Setiu however, the affluent use other means to avoid fulfilling the expected social role. To play down its wealth, an *orang senang* household of Pok R2 in Gong Batu admits to publicly making known of its lack of financial resources by taking a loan from *Amanah Ikhtiar* to purportedly buy a new car when it had actually been paid for in cash. Pok R2's wife Mek A explains that the interest-free loan money was instead deposited into her Amanah Saham Bumiputra[141] account, which generates a guaranteed dividend of 8.5% a year. Therefore, through this cunning device, not only has she successfully made her household look less rich than it actually is, she has even managed to make it more financially secure. The couple's justification for their covert maneuver to free themselves of socially bound lending obligations is their neighbours failure to respect their end of the social bargain: they do not give Pok R2 priority to buy their fish nor do they pay their debts. Such explanations are not unlike those given by the rich farmers of Sedaka, who are an "emerging agrarian capitalist class" (Scott 1985: 184) that are still operating in "a largely pre-capitalist normative atmosphere" and are therefore obliged to explain themselves using a logic that are "only partially circumvented by a rather tortured but creative attempt by rich farmers to bend the facts of the case to suit themselves"(1985: 184).

While reluctance may be felt in extending social-bound financial assistance, non-financial types of assistance such as food and physical labour

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[141] A government guaranteed trust fund created for the Bumiputras, referring to the 'Sons of the land': a category that consist of the Malays and other indigenous ethnic groups

seem to be willingly extended by every household in this society, especially during village celebrations such as weddings and other *kenduris*[142] as well as during exceptional events such as sickness and death. In the spirit of *gotong-royong*, the whole village will come together to clean or repair communal facilities or help a household that is organizing a *kenduri* to either clean the house area, build tents or cook food. Furthermore, the fishers in Gong Batu liken their collective search for squid nest during the squid season to an act of *gotong- royong*, and in Rhu Sepuluh the same is said of the night-surveillance initiative where fishers take turns to watch over their engines at night. But non-participation in such initiatives is not in any way punishable, except with non-direct but subtle punishment. A fisher who never goes looking for the squid nest with the others is nicknamed *lubuk*, literally meaning deep parts of the sea or river[143], while another who does not show up for his night guard shift will find people dragging their feet to help him during boat launch or return.

The authority of traditional codes of conduct such as *saling bantu-membantu* and *gotong royong* depends on the traditional principles of community living on which it is based. The resilience of the latter was a point of great concern for Firth (1975) and Horii (1972) in view of the developmental changes that was taking place since the country's independence, which they feared to lead to the erosion of traditional values. Moreover, "people's increasing reliance on markets for their means of livelihoods weakens the traditional reciprocity principles and relationships of authority in the

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[142] A kenduri generally refers to a gathering with food offered by the host.

[143] Underwater, there is less current in the deep parts. Due to this, most solid substances such as wood, animal carcasses etc will be deposited and accumulated and eventually rot there. The person who bears this nickname is therefore referred to a person who only wish to accumulate benefits without putting in any effort.

community" (Francis 2000:126), and the introduction of new livelihood mechanisms create subtle ways to resist this social obligation (Scott 1985). The *orang senangs* of Setiu seem to currently be in a situation similar to the one of the rich farmers in Sedaka at the beginning of the country's green revolution in late 1970s, a period which saw the introduction of double cropping and mechanization to paddy farming in the Muda plains of Kedah. According to Scott (1985: 184), "to exploit these new chances of capital accumulation, however, large farmers and landlords have stripped away many of the economic and social ties that previously bound them to poorer villagers". But by preferring the use of modern harvesting machines instead of manual labourers, they are able to play down their wealth and pay less contribution, according to Sedaka poor farmers who therefore accused the rich farmers of using the machines to avoid their social obligations[144].

Race, ethnicity and social capital

Community relations are also defined by race (Ellis 2000, Francis 2000), and therefore it is necessary to highlight the case of the few non-Malay households in Rhu Sepuluh[145]. One such family is Pok Mi's household. Pok Mi is a foreign fisher of Bangladeshi origin. Although he has lived in the village since his marriage Mek H, a local woman more than two decades ago, Pok Mi claims that as a fisher, he has suffered from discrimination by those who do not accept him as one of them:

> Pok Mi: (...) But I decided to leave because I was not happy with the way I was treated by the *tekong*. I felt that he took advantage on me,

[144] A well to do farmer in Sedaka is expected to contribute a portion of the wealth made from the harvest to the poor in the form of zakat tithe, and the manual work provided by poorer households in the land owned by rich farmers allows the former to know exactly how much the latter should be contributing as they know how much paddy has been harvested in that season.

[145] There are only Malays in Gong Batu.

> treated me like I was his slave, not allowing me to work for other people, scolding others for wanting me to work for them. (...) For working at sea, people here get subsidised boat and engine, which cost already RM8,000 in the market from the government. Sometimes they even get net, subsidised fuel and artificial reefs. But the problem here is lack of hardwork. Not me, I work real hard to get the equipment. (...) We had to buy everything. And worst, they sabotaged me. Not only had they not help me, they even sabotaged me. They could have helped me [get fisheries subsidies].
>
> (Interview at household 2CPMi on 17 September 2008)

Pok Mi felt he was treated badly by his former employer because he was not a local. As for being denied from receiving any fisheries assistance, he is convinced that if the people heading the local fisheries association really wanted to help him, they would have assisted him to acquire at least a permanent resident status instead of using his foreign nationality as an excuse to not allow him access to the various subsidy schemes. Despite all these, presently, he is recognised by all as a very successful fisher with an unrivaled work ethic. He is a self-made man who has learnt to rely on himself and a selective circle of friends. He works solitarily mainy because of the technology he employs, for whereas the others from his landing base in Pandan Jaya are gillnetters who set off at dawn, he is a *bubu* fisher and sets out only once there is light. But he has no need for much help to set off because he uses a smaller-sized boat which can be launched with only the help of his wife who sends him to the fishing base every morning and picks him up when he returns.

In addition to the support of his wife, Pok Mi has generated another network of support through work with another non-Malay family. He gets

help to pull in his boat upon his return from fishing using the lorry owned by the Boons, one of the three local Chinese families in the village to whom the couple are closely acquainted[146]. It is often commented by others that Pok Mi has no need for fishing parties and doesn't need other people's help because he has the Boons for his friends. It was Mr Boon who gave him the idea and capital to try *bubu* fishing a few years ago, simply because he wanted to eat fresh snappers. He has heard of Pok M.J's success in catching snappers with *bubu* and therefore sponsored the *bubu* materials for Pok Mi to use. In return, he is able to take as much fish as he pleases for the family's own consumption from Pok Mi. So Pok Mi's venture into *bubu* fishing with Mr Boon's help is similar to a *towkay-awak* relation. But after the initial *bubus* fishing season, Pok Mi acquired materials for *bubu* with his own capital. The Boons still get the fish they like for their meals from Pok Mi's because they help him pull in his boat. This service is not usually extended to other fishers, except when they happen to be back from fishing when the Boon's lorry is pulling Pok Mi's boat.

Although Pok Mi says that he prefers not to associate too much with the other villagers, the family maintains a good relationship with its neighbours. During an interview at a neighbouring household, I was told by Pok L and his wife that the Pok Mi had lent them money whenever they asked for it. I was also told by the same couple of how badly treated Pok Mi and Mek H were by their own kin who chased them out of the house that they had built on Mek H's family land in Penarik. When asked about it, both explained that it was an isolated case of family feud because, aside from a particular uncle who had ill

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146 The couple takes care of the Boons' residence whenever the family is away for example during Chinese New Year. They also use a car owned by the Boons while waiting for their new car to arrive.

feelings towards them, the other relatives were sympathetic to their plight. They are even optimistic about the possibility of reclaiming the house once that person is gone. During my surveys on the beach, I frequently found Pok Mi putting aside some of his catch for friends or relatives.

Pok Mi's experience contrasts somewhat with the Chinese households, most of which have been part of the Rhu Sepuluh community since the time when they were still living in Kampung Payang.[147] As such, they have a rather special place in the village. They are part of a small Chinese community that has been in Setiu for many generations[148] and is accepted as part of the local village community. They could easily be mistaken as Malays because they speak the local Terengganu dialect and some even dress like their Malay neighbours, although they still maintain important aspects of their cultural and religious life. As Firth (1975) observed in pre-independent East Coast fishing villages, the non-Malay villagers were well integrated in the community and were operating as either shopkeepers or involved in fish processing. Although the three Chinese households all come from a well-known and rich fish *Towkay* family in Kuala Setiu, none are directly involved in fishery except for Mek Y's younger brother A[149] who was a Hokey prawn *Towkay* when he was alive. The Boons own the local hardware shop while their cousin Mek Y runs a grocery

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[147] A similar community is found in Fikri, which used to be an important base for anchovy fishing and processing.

[148] I was unable to determine the family's arrival period in the area. But considering the facts that that Mek Y's is already in her sixties and that her famous grandfather could not have been an immigrant, the family could have settled here for at least five generations. They may have arrived mid 19th century. This estimation can be supported by the history of the Kuala Setiu area that was claimed to be first settled in early 19th century and a late 19th century expedition report (Clifford 1961 that discovered an already well established Chinese community when they arrived in the Terengganu state capital.

[149] A is the good Chinese Towkay that is mentioned earlier in the interview on *Towkay-Awak* relations with Pok Az.

shop. Their other relatives have moved to the state capital although they operate a bird-farming[150] facility on their land, as do the other two families.

Like their neighbours in the former village, this Chinese community moved to Rhu Sepuluh when they were given land during the relocation programme in mid 1970s. Their houses are all located along the main coastal road. During one interview, I was told that their resettlement was a classic case of an originally disadvantaged situation that had later turned into a great advantage:

> Mek PL: That's why we now laugh. The Chinese said, last time people didn't want to stay in the bushy areas and so they moved the Chinese there, not [closer in the village] with the Malays. But now, they are the ones living next to the main road! The rest are now living in the bush! They are really smart these Chinese. Before we know it, their land becomes the one off the road. All of them!
> (Interview at household 2BPL on 1 Nov 2008)

When the Rhu Sepuluh village was first opened, it was connected to other parts of Setiu only by a gravel path that led to older settlements in the Northern part of the village. The Southern coastal part of the village was the most remote area and was considered the village's end. It was therefore the least desirable part of the village, and the resettlement committee had purposely located their Chinese community there knowing well that the Malay community would not tolerate the peripheral location. But the Chinese

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[150] This refers to creating specificly designed structures to host Swiflets, in order to collect their nests which is a Chinese delicacy that fetches a very high price (reportedly RM8000 a kilogramme)

reportedly accepted without complain. Soon, newer settlements were established along the coast, from Bari until the state capital, Kuala Terengganu. A coastal road that connects all these new villages to the state capital in the South and Kuala Besut in the North was then built. Whether it is a case of pure luck or a well-calculated risk, the outcome is that Mr Boon and his relatives now own prime land along the main road. But unlike most of their Malay neighbours who own only the two acres land grant in Rhu Sepuluh, these Chinese families own land in the area around their former village. It is a well known fact that their late grandfather, who is until today fondly remembered by many people and not only in Rhu Sepuluh but also in Gong Batu owned a lot of land:

> Pok I: The grandfather used to be a very rich man. They had a shop even back then.
>
> Jarina: Was he the first to settle there or was his family already there before him?
>
> Pok I: As far as I could remember, it was her grandfather but I don't really know. Ask her (Mek Y). She'd know.
>
> Wife: Our grandfather used to be very good friends with her grandfather.
>
> Pok I: Mek Yang's grandfather is a *Towkay*. He has a lot of land under our grandfather's name. But he doesn't claim it as his, although it's under his name.
>
> Pok I: The company that owns the land was under his name, with a few other Malays. But her grandfather was the only one who paid for the land and the bills. He was a very good man.
>
> Pok I: He gave even to Malays, because he lived among Malays.

Wife: Our grandfather, when he needed money, would go to him. He was his master diver.

(Interview with 2API on 22 October 2010)

Thus, Pok A.S was a well respected man not only because he was a successful *Tekong* who owned many fishing boats, but also because he was fair and always helped his Malay crew. Unfortunately over the years because most of the land titles were registered under the name of their grandfather's Malay crew[151], some of these properties have been lost[152]. Despite these losses, the Chinese households in Setiu are still considered better-off than their Malay neighbours, with whom they maintain a very good relationship. They do not play an active role in village life as their famous ancestor probably had, preferring instead to quietly run their respective businesses. It seems that since they are no longer involved in the fishery sector, around which the village life still revolves, they are less integrated in the kinds of social and work networks that are so critical to the community. Nonetheless these families are known to sponsor feasts during auspicious occasions. Thus, they are an important source of credit for their fellow villagers, either in kind when people purchase goods from their grocery or hardware shops, or in cash. In a sense, they have assumed the role of an ethnic minority living in a similarly ethnicised rural community. They go on with their business without expecting to make any

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[151] After independence, the Terengganu State's land law introduced 'Malay reserve' or 'No reserve' (that can be owned by non-Malays) land categories. Most rural lands are reserved for Malays only but in the early post independent era, not many Malays in the East Coast fishing communities had the financial capital to acquire property (See Firth 1975: for further detail). There are also instances when Malay reserved land were mortgaged to non Malay creditors. Therefore, land-transfers (based on sale or otherwise) were also made to affluent non-Malays using a trusted Malay person's name, usually someone working under the actual buyer. This transaction is based purely on trust as the real buyer has no way to claim the property should the title-bearer chose to betray him.

[152] When the crew whose name was used to purchase the land dies, the land automatically becomes his children's. The former may not be in the know of or choose to ignore the actual arrangement between the late father and his Chinese *Towkay*.

village claims as would a Malay household in Rhu Sepuluh. This may well be because they perceive that their place in Rhu Sepuluh in community was not given, but gained.

Generally accepted as part of the village community, non-Malay members of the community may not feel that they have access to the same type of claims as Malay members of the village because their place in the village is not earned unconditionally. The Chinese families of Rhu Sepuluh owes much to the respectable place that their ancestors have in the village history, as well as the commercial and financial ties (through the credit they give) that they have with their Malay neighbours which keep them connected to the lives of their fellow villagers[153]. The fact that they speak and have similar mannerisms as their Malay neighbours obviously facilitate their integration into the otherwise homogenously Malay village community. But it does however seem that while they are not totally excluded, the social capital bonds between them and the other villagers may not be as strong as those enjoyed by Malay village members. Their village membership has a 'semi-otherness' character, which they seem to accept willingly. They do not seem determined to challenge the status quo, perhaps this is because the Chinese community of Rhu Sepuluh might not see themselves being in the village forever. All the children from these families, with the exception of one no longer stay in the village and have moved to the state capital where they enjoy better livelihood opportunities. In fact, there are only two of the originally five Chinese households left in the

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[153] Their commercial and financial connections with their Malay neighbours are no longer as strong as how it used to be in the past when their shops were the main providers of household. Until the 1960s, Indian and Chinese shopkeepers in the East Coast fishing villages played an important role in providing most if not all supplies needed in the village households, which were most usually acquired in credit (Firth 1975). However, they are no longer the sole option today as there are now are a number of grocery shops in the village. Moreover, the improvement made in road transportation enables people to procure their supplies in the bigger stores in nearby towns or even the state capital.

village. The demise of the elderly residents of these households may well mark the end to the presence of the Chinese community in the village which in fact does not only conform to the minority ways of village life but also contribute, with their ethnic-fusion characteristics, an interesting cultural layer to the Rhu Sepuluh.

The feeling of being 'part insider-part outsider' is evidently shared by Pok Mi who has earned his membership partly through his marriage to a local woman but mostly from the respect he has earned from his success in the local fishery scene. He is in fact more willing to affiliate himself with the Boons than his Malay neighbours, and enjoys strong bridging social capital claims from this relationship. Unlike the Chinese families, Pok Mi grudgingly tolerates the rigidity of the socio-culturally embedded village institution that limits his access to certain social capital claims due to his foreign origin. But as the village becomes an increasingly important political battlefield, being a Malay household in the village may no longer be socially sufficient to access important resources.

Political affiliation: the new essential capital

Upon Firth's (1975) return in 1963 to the fieldwork sites in the North-Eastern states of Peninsular Malaysia on which his classic study was based, he had noted an increased participation in politics, and the fishermen were by then able to vote in both State and Federal elections. He argued that although there were "some difficulties in regard to allocation of Federal funds for economic development, and perhaps at times some divided loyalties for officials of the Federation stationed in Kelantan" (Firth 1975:10), because the state of Kelantan was under the rule of the opposition, "little of this has reached the ordinary fishermen, for whom the issues involved are often oversimplified or obscure"..

But Scott's (1985) study on the farmers in the Ulu Muda plains between 1978 and 1980 had found that rural villages have become contentious political terrains where it mattered whose side one is on when it comes to eligibility to state or Federal funded aids.

An example of a bridging social capital-generating type of vertical association, political affiliation has thus become the new social currency. It creates networks which allow a group of people to be in a sphere of influence which they otherwise would not have. For this reason, there is heavy political campaigning, especially by the ruling party in every village in the country since the country's independence (Shamsul 1988), and overwhelmingly so in Terengganu, a state where a brief political defection of the Terengganu people has created a heightened sense of political scheming, promise making and post electoral paybacks or retributions. Although not as politically notorious as their Kelantanese neighbours[154], the people of Terengganu had defected for the first time since the first constitutional crisis in the state in 1961[155] to side with the Opposition instead of the ruling Barisan Nasional[156] coalition during the 1999 General Elections. Since then, it mattered even more with whom one sided politically as it became a distinguishing criteria in obtaining state or federal funded aids; where priority, if not exclusivity, is given to members of

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[154] With the exception between 1979 and 1989, PAS has ruled Kelantan since the first general elections in 1959.

[155] In 1959, the first state government was led by the PAS, an opposition party but the state's first cabinet was faced with a vote of no confidence and was subsequently replaced by an UMNO-led BN cabinet. The state has been governed by the BN without interruption until the 1999 election which saw the return of PAS rule for one term. In the following general elections in 2003, the state was regained by the BN coalition, which rule was reaffirmed in the recent general elections in 2008.

[156] Literally 'National Front', this political coalition (formerly known as Perikatan or the Alliance Party) between the Malay UMNO party, Chinese MCA party and the Indian MIC has been at the helm of the government since the country's first general election in 1955.

the ruling party, and this political 'witch hunt' is carried out down to the village level.

In Malaysia, the political ruling party is represented at village level by the *Jawantankuasa Kebajikan dan Keselamatan Kampung* (JKKK) or Village Welfare and Safety Committee. Although this structure was first set up in 1966 as the *Jawatankuasa Pembangunan Kampung* (JPK) or Rural Development Committee to facilitate the rural development at grass-root level, it was later restructured to become no more than a political tool of the ruling party for whom rural development was an important political strategy for winning Malay votes. Shamsul (1988: 218-219) rightly argues that "without rural Malay support, UMNO would not exist." Hence, the rural development policy is primarily aimed at satisfying the desires of the rural Malay electorate. The highly political nature of rural development programmes in Malaysia need not be stressed here. Suffice to note that such programmes have even made the distribution of functions among cabinet ministers a matter of great sensitivity.

First set up under the Second Five-year Malaya Plan of 1961-1965, the JPK was established to replace the *Ketua Kampung* with a democratically elected committee of eleven to fifteen members. JPK's main objective was to increase the mobility of the district administration to mobilize local initiative in community development effort. In short, it is responsible for developing a sense of *kampungness* (Shamsul 1988: 224), or a sense of village life. The JPKs were later renamed *Jawantankuasa Kebajikan dan Keselamatan Kampung* (JKKK) after they had "*Keselamatan*" or Security added to its name in 1975. In the 1988 article, Shamsul supports earlier claims by Scott (1985) that the JKKK is a political power-brokering machine at village level. This seems to still be the case in Setiu today where the JKKK members are not popularly elected but are

openly chosen and appointed by political leaders at district levels, and it is obvious that the committees never include members of the Opposition party. In fact, a JKKK is no different than the UMNO branch at village level[157] which sees to the distribution of party funds, in cash and in kind, to reward supporters. Since 1975, the JKKK had actually become a political agent of the ruling party with the mandate to promote, identify and reward membership while excluding those who do not adhere. This strategy is indeed effective in attracting membership, especially among the poor who could not risk losing access to such to vital livelihood resources (Scott 1985).

In both case study villages, UMNO-led JKKKs are said to provide assistance only to party supporters. Pok NS of Rhu Sepuluh complains that his household does not have much access to assistance despite their obvious difficulty because he "doesn't know how to talk politics", insinuating that his household would probably benefit more if he knew how to 'sweet talk' the *JKKK*. It is however neither a good idea to disregard the JKKK, nor to talk against the ruling party as applications for assistance or infrastructure support, including those that are channeled through fisheries-based agencies, must have prior approval from the *JKKKs*, and those who are identified as supporters of the Opposition will be denied access. Pok A of Gong Batu, for example, is convinced that he is the only fisher not given a Fisherman Registration card because he openly expresses his support for the Opposition. Indeed, a *JKKK* member of Gong Batu admitted that this fisher is denied any form of support simply because he is a very contentious fellow who does not participate in

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[157] With less of an economic role to play since 1980s due to the creation of various agencies to take over their socio-economic functions, the political role of JKKK became even more emphasized as they are left with only a function in rural administration. In an effort to render it more effective as a political organisation, the BN-led Government made it mandatory for village head to also be the chairperson of the village's UMNO branch (Shamsul 1988: 223-225).

village activities. Village activies in this case is undeniably synonymous to party activities and those who do not participate are thus labeled as supporters of the Opposition and automatically lose their *JKKK's* patronage which actually means being excluded from government aids and administrative support.

Correlation has been found between membership in organisations and income at village level (Narayan and Pritchett 1997). However, this is not the case with the communities from the two case studies discussed in this research. At the household level, the most affluent fisher households in these communities are not active members in these organisations. Only one of the five *orang senang* fishers are in the *JKKK* sub-committee. This is a striking contrast to the findings made Scott (1985) in his study on civil society actions in the farming community of Sedaka, where the most active in either the ruling or opposition parties were the rich farmers. As per kinship and friendship networks, the *orang senang* of Setiu do not rely much on political affiliation despite its usefulness in livelihood making. The reason may well be as Woolcock (1999) argued, that these human relation-centred sources of social capitals can be stifling. Fortunately for them, they are able to bypass these networks without hampering their livelihood, unlike the less affluent households. A higher level of tolerance and adherence is however displayed in the local institutions that govern their life as a fisher, which the next section discusses.

Setiu fishing codes of conduct

The Fisheries Act 1985 that govern the practices in the Malaysian fishery sector (Chapter II) is only one mechanism of regulation operations in the Setiu context. Equally as important are the local fishing institution, or the codes of conduct that fishers accept and enforce with varying degrees of adherence. More practical and flexible than the institutions discussed in the previous sub-section, the key mechanisms of regulation operations at the local level are village coastal water territoriality, *unjang*-based resource claims, and bait pacts.

Informal right to fish in village coastal water

In the coastal areas, the villages are also identified with their respective coastline, namely the coast bordering the village. Therefore, the coastal area, meaning the marine area along village coastline, belongs to the village as well. Accordingly, a fisher is identified with the village from where he hails. Throughout conversations with the research participants, they never fail to point out the importance of village membership of the individual or group of fishers in order to challenge or support the legitimacy of their access to specific marine resources. This subsequently leads to village-based (territorial) fishing claims by fishers on the resources that are contained in their village marine area. While there is no open claim made by any fisher on exclusive right to the village's waters, fishers who fish in another village's waters are aware of the potential hostility that they may face from the local fishers:

> Jarina: But you know where most artificial reefs are located (in Penarik) then?
>
> PMA: Yes, just by watching the line-fishers (from there). I sometimes go close to where the line fishers are fishing to check the location. When you go there often, it's ok to set up your cages there but if you don't

then they will throw out your fish cage, because they consider you an outsider. But if we go often, then it's alright.

(Interview at household 1CPMA on 28 May 2009)

The above interview reveals a territorial claim by local fishers on artificial reefs that are located in their local waters. The same applies to fishing for area-specific resources such as squid. The Gong Batu waters are well known for squid jigging due to the existence of squid nesting locations there. But claims to the local waters and the resources within is no more than an informal claim as there is no practice of community property rights among Malaysian fisherfolks. Thus, unlike the South Pacific and Oceanic islanders who practise traditional area-based marine resource management (Johannes 2002; Aswani 2006) or the fishers from the Philippines and Indonesia who have recently participated in community-based marine area management (Pollnack et al 2001; Pomeroy et al 2007; Salayo et al 2008), in Setiu the sea is by and large recognised as an open resource where a fisher is free to look for his *rezeki*. There is therefore difficulty in claiming exclusivity over the squid resources or artificial reefs sites within the local village waters. But fishers from Gong Batu are said to have come up with a cunning device to protect their squid resources during the squid season, namely by 'chain-jigging'; according to a few fishers in Rhu Sepuluh, once a squid-nest has been identified by a team of fishers from Gong Batu, they will not let go of the jigging until another team from same village takes over. This reportedly goes on until all the squid have been jigged from the nest. Though very few of Gong Batu fishers actually admit to jigging at night, there is a kind of informal claim made by fishers on their local waters which supports a place-based justification on who can legitimately access certain resources. In this sense, Setiu fishers use their village membership, a horizontal association to claim exclusivity to the local waters and the resources

therein. But unlike the earlier discussed village-based claims that are more rigid due to its association to racial background, its geographic-based qualification criteria is looser and therefore more accessible.

Unjang and the informal appropriation of fishing grounds and its resources

Although a formal claim on ocean resources prior to harvesting would not be substantiated, one can still, as discussed in Chapter V, appropriate a small part of the vast ocean as one's own through *unjang* setting. The devices are set up by fishers in their effort to aggregate certain types of fish at a specific location to facilitate their capture, and the fisher who sets it up has the right to appropriate the *unjang* location as his own fishing spot, which in this sense becomes an individually-owned natural capital. Thus, the resources that are caught at the *unjang* belong exclusively to him. As discussed in detail in the previous chapter, this is permissible in recognition of the *unjang* setter's individual initiative and investment in physical labour (see Figure 32 on the process of deploying unjang). In the following section, the informal rights associated with this local institution, found in the form of codes of conduct are discussed.

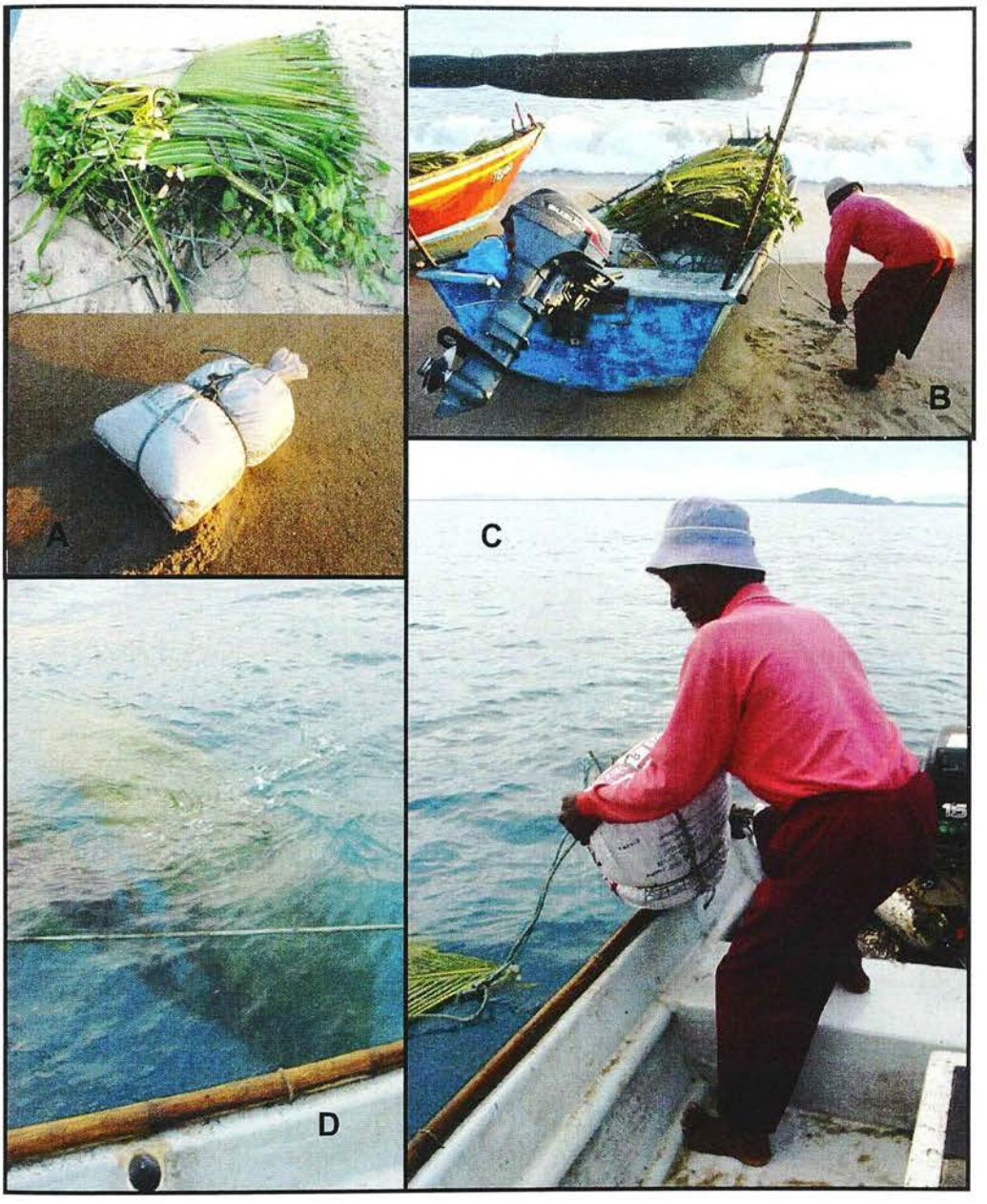

Figure 32. Unjang material and deployment process: A) materials (coconut fronds and teja branches tied together abd a bag of sand (weight); B) loading materials unto boat; C) deploying the unjang unit; and D) unjang submerging into the sea.

This traditional fish aggregating device is considered an ingenious fishing tool and its efficiency in helping to increase fishing yield is well documented (Parry 1954, Firth 1975), and access to *unjang* is controlled in order to ensure its optimal performance:

> Jarina: You once told me that people don't make *unjang* anymore because they get fed up because other fishers fish there too. Is that true?
> Pok L: Well, that is an issue. The *unjang* that we set up using our boat is very heavy. So, if people were to attach their boat there, it would definitely be lost just like that.
> Jarina: Does that often happen?
> Pok L: It happens. But if we make a lot of it, then they would only get damaged. Say you make five *unjangs* and if they attach their boat to one, you will still be able to locate it [by referring to the other four]. [...] They [other fishers] are not supposed to go [fish there]. Or if they wish to go, they must inform the owner first. So actually, if they asked beforehand, the *unjang* owner would not be too upset, because it would be better than not telling at all. Because let's take the *unjang* for snappers for example. These snappers have a peculiar behaviour. If they have been fished [at an *unjang*] once, they would not bite again. So, usually the *unjang* owner would go to his *unjang* once every two days. If he doesn't go and someone else takes the advantage of it instead, then the fish would not bite again the next day when he goes.
> (Interview at household 2APLI on 21 May 2009)

Due to the risk of losing not only the fish resources but also the device itself, *unjangs* are properties that are highly priced and, when possible, defended. In fact, catching fish at another person's *unjang* without permission is likened to

stealing. However, defending the resources at one's *unjang* from these thieves is no easy feat, mainly because these *unjangs* are located at the open sea. It is therefore not easy to catch an *unjang* thief and even if the culprit is caught, there is no real punishment that can be sentenced upon him except shaming him. And even this is usually done subtly. Despite the rather light punishment for violating someone's *unjang* right, *unjang* owners are still willing to chase after the culprit, which many colourful tales of such a chase-at-sea told during my interviews testify. They confirm the importance that the *unjang* owners place on the exclusive use of their *unjangs*.

There also exists a code for *unjang* co-sharing between *unjang* setters. An *unjang* owner could use the *unjangs* set up by other fishers and other *unjang* setters could fish at his *unjang*. In this sense, an *unjang* become a common resource pool between *unjang* setters, based on reciprocity. This institution therefore allows fishers to move from a horizontal type of social association to a vertical one, and convert the participant[158]-specific nature of the bonding social capital claims that they derive from their *unjangs* into a bridging one when shared with a selected few fisher-friends. As mentioned in Chapter I, this practice was also documented as a common routine among large traditional fishers as their *pukat tangkul* and *pukat payang* operations need to use *unjang* (Firth 1975). Permission must however be given by the unjang owner and entails a contribution of about 2% of the catch made at the unjang. The contribution, which is called *kepala unjang* - literally meaning *unjang* head - is given on the basis of profit-sharing and also, and perhaps mainly, as show of gratitude to the *unjang* owner for sharing the unjang that he has set up.

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[158] This refers to device setter(s)

From unjang to artificial reefs

Due to the conceptual linkage that local fishers make between *unjang* and artificial reefs, these *unjang* related codes are also applied to certain artificial reefs sites that are considered owned by a certain fisher[159]. In fact, it has been suggested by a number of fishers in Rhu Sepuluh that purse seiners who fish at artificial reefs could also avoid being reprimanded if they paid the so called owners of the artificial reefs their *kepala unjang* share. However, such claims carry less authority than the exclusive ownership of *unjang* described earlier. Artificial reef ownership is not given the same esteem and recognition as the ownership of an *unjang* because artificial reefs structures are generally considered a property of the government :

> Jarina: I have heard that in the past, artificial reefs sites were named after and designated to a group of fishers.
>
> Pok L.I: Yes. About ten of them for each artificial reefs site. This apparently was the practice in Rhu Sepuluh. That's why there's Dolah's artificial reefs or Ipin's artificial reefs, and they used to be paid by the *kepala unjang* for the catch made by night purse seiners there. But not anymore. Furthermore, the government has stopped allocating artificial reefs to specific groups. So there's no more exclusive ownership and the artificial reefs sites becomes free for all. So no head anymore.
>
> (Interview at household 1APLI on 21 May 2009)

It is important to recall that while artificial reefs deployment was reportedly carried out with the help of a group of fishers in the past, they are now fully conducted by the deploying agencies or their contractors. Today,

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[159] The ownership of artificial reefs is claimed based on fishers' participation in artificial reefs deployment. See discussion on human-capital based claims on natural capital in the chapter IV.

the involvement of fishers in artificial reefs deployment is, at the most, in site identification, as documented during an artificial reefs deployment exercise that I was invited to observe. However involvement of fishers in this process in itself is a rare occurrence. Without actual participation, local fishers have no basis for claim-making, and without this, its related code of fishing conduct does not apply. Therefore, *kepala unjang* is no longer given when purse seiners fish at artificial reefs, on the one hand due to the ambuiguity of the ownership status at new artificial reefs site but mostly because, according to a number of fishers in Rhu Sepuluh, purse seiners today have grown, like the rich paddy farmers in Sedaka, too greedy and prefer to keep everything to themselves. This is evident, according to a number of fishers in Rhu Sepuluh, because they frequently sneak into areas where older, thus 'appropriated' artificial reefs in Rhu Sepuluh are located to fish but land their catch in further away Kuala Besut port instead of in Penarik to either hide their catch or pretend that they had not fished in Rhu Sepuluh.

Despite the fishing benefit that *unjang* setting offers, it is found that there are actually fewer and fewer fishers who set up *unjangs* in Setiu. Many claim that it is not something worth doing anymore due to the rampant stealing and frequent losses of the set devices. The allocation of *Kepala Unjang* is also hardly practised nowadays. These transgressions demonstrate an increasing disregard to the *unjang* code, which puts to question whether this local traditional institution would survive in the future. Its demise would be regrettable for it is arguably the most versatile local fishery institution in Setiu.

Bait pact and encroachment by commercial fishers

Another unique local practice found in Setiu is the free bait provision by purse seiners to line fishers. Some line fishers fish further off the Setiu coast, around

the islands of Yu, Redang, Lang Tengah and Penarik. Since they target bigger fish, they need good quality bait such as anchovy and squid, which they would get from the local purse seiners. According to a purse seiner, this is a tradition that is still by and large upheld in Setiu:

> Jarina: Now what's the story with those line fishers, from Rhu Sepuluh for example those I always find on the beach every morning waiting for the purse-seiners' smoke to appear?
>
> Pok Ya: Ah! Those fishers, as soon as they see the smoke, they know how to find us purse seiners. So they quickly get their gears and approach us for bait. They'll take some and then go off fishing. No payment or anything.
>
> Jarina: Is that a tradition here?
>
> Pok Ya: Oh yes! It has been like that for a long time. It's part of our fishing *adat* (traditional practice).
>
> Jarina: So, it is tradition to give bait to fishers?
>
> Pok Ya: Well, if people ask for it, we must give! That's how it is with my boat. Others may not give as much but my boat, we always do.
>
> Jarina: I ask this because some fishers had actually said that it is rather selfish to take bait from purse seiners for free. It's also a bit embarrassing, as purse seiners would say "Oh! Here they come!" whenever they see a line fisher approach them.
>
> Pok Ya: It can go up to 70 or 80 kilograms a day actually, this free given bait. So let's say we get 500 kg that day, a 100 kg would probably go to free bait. Because there's many of them. Not so many in March or April but a lot in July-August. People from Rhu Sepuluh will go to Chepu (where anchovy purse seiners usually fish), so would those from Penarik.

(Interview with Pok Y, a Setiu purse seiner on 3 January 2009)

The fishers in Rhu Sepuluh could be seen standing-by at the *wakaf* by the beach every morning, looking out for smoke to appear at the horizon, which indicates a returning anchovy purse seine[160]. Once detected, they get ready to set off their boats towards it to get some of the fresh catch, which is usually given a bucket to each fisher for free. By doing so, they do not need to spend time looking for bait near the coast anymore and can go straight to fish further out at sea. Thus, the bait pact between the line fishers and the purse seiners is an excellent example of linking social capital among Setiu fishers.

While the purse seiner in the above interview never declines bait requests, some purse seiners are said to do so when they do not return with a good catch. As mentioned in the interview, a bucket of bait for each fisher can amount to quite a considerable portion of the catch when added up, and giving away any catch for free when the total catch is small can make the crew especially unhappy. One of the purse seiner operators even admits that he had wanted to impose a minimal charge for the bait given but it was not well accepted by the line fishers. Not all line fishers are, however, oblivious to the purse seiners' loss of income. The fishers of Gong Batu for example collect money from each fisher who wants bait and offer it to the purse seiner in question. Although the payment is rarely accepted, this group of fishers offers payment to demonstrate that they not wish to take advantage of the purse seiners. A few fishers from Rhu Sepuluh even criticize their colleagues who take the bait and prefer instead to look for their own. But they are near-shore

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[160] In the past, anchovy is only processed on land. Nowadays, the process begins on board with the boiling of anchovy once the catch has been hauled up and sorted, usually as the boat sets home. The boiled anchovy is later dried on land.

fishers who either do not need the bait because either they do not line fish or they line fish in the coastal waters only. Furthermore, the bait offered to line-fishers by the purse seiners may be more than just a charitable act or a done simply in adherence to tradition. It is in fact, as Pok MJ explains, a 'license to encroach':

> Jarina: Can't the folks here say something about this [purse seiner encroachment at artificial reefs]?
>
> Pok MJ: That's a bit difficult. You know why? Because the folks here would have to ask for bait from them too.
>
> Jarina: You mean they get their bait from the night purse seiners too? Not the anchovy purse seiners only?
>
> Pok MJ: From the anchovy purse seiners, they ask for anchovy. But that's only when the season to fish with anchovy comes, in August for example. On normal season, they fish with squid, which they get from the night purse seiner. That's why they go fishing far at the islands. They ask for squid as bait and go off fishing for Queenfish. They would ask for squid and barracuda, which they use to fish the Spanish mackerel.
>
> Jarina: And the purse seiners always supply them with bait?
>
> Pok MJ: They do. And not just a bit for each person. Sometimes up to 3 kg each fisher! That's why purse seiners can behave like kings here, coming in every night. They should at least just go occasionally but no. They fish every night at the artificial reefs! (...)
>
> Jarina: But all the artificial reefs are in the A zone, right?
>
> Pok MJ: In the A zone, yes. But because the folks here take bait from them... it's like this. Otherwise, the line fishers will have to pay for the bait.

Jarina: So there is some kind of understanding, or incentive for the line fishers?

Pok MJ: Yes. If the line fishers reprimand them, surely they can't go asking for bait anymore. And without bait, where can they go fishing? It's free bait, you see.

(Interview at household Pok MJ on 17 October 2008)

Since the Fisheries Act has demarcated the coastal area as an exclusive zone for small-scale fishery, it is illegal to operate purse seine fishing within five nautical miles from the coast. Therefore, the free anchovy and squid given to line fishers may be no more than a pseudo *kepala unjang* in practice. For the bait given, purse seine fishers are not reported but are instead given access to illegally fish the resources in coastal waters, including artificial reefs. There is therefore a sort of social contract between these two groups of fishers, which however negates the fishing entitlements of other small fishers who do not enter the pact.

Local fishing codes of conduct are usually based on the principles of common law that serve more as a guideline than regulations (Acheson 1981), and those that exist in the case study area are of no exception (Firth 1975). From geography-based local water claims to *unjang* codes and bait pacts, the local fishing institutions that still continue to regulate, albeit in varying degrees of adherence, the small-scale fishing operations in Setiu have so far survived the test of time. But due to overlaps with formal fishery regulations and decline in local authority recognition there are signs of increasing disregard of these ingenious and potentially the most effective local fishery management tool. More flexible than those that govern village life thanks to the practical nature of the validating criteria for access to their related claims or

entitlements, the local fishing institutions allow fishers to easily move between horizontal to vertical types of social networks. This helps local fishers create a fishing arena that is most conducive to their operations, which is illustrated at best by the highly-exclusive (in origin) *unjang* related claims that can become inclusive when device owners share their exclusive right to fish not only as a social bond with kinsmen, but also to create either bridging social capitals with a few fellow small-scale fishers or linking social capitals with bait-providing purse seiners. But the ingenuity of Setiu local institutions is not limited to those applied for actual fishing operations, but extends to the ones that regulate their post-fishing preoccupations, i.e marketing of fish catch to which the chapter turns to next.

Towkay-awak market mechanism

Small-scale fishers in Setiu rarely involve themselves in directly marketing their catch. Besides the occasional direct-selling that takes place on the beach upon their return due to popular demand,[161] they usually prefer to sell their catch to *Towkays*. Setiu fishers are found to also draw heavily upon the social bond that they have with the former in securing necessary livelihood assets. This refers specifically to the *awak-towkays* relationship, which has been partly discussed in the preceding chapter. The relationship is based on a market relationship in a typically Malaysian fishery context, where *towkays*[162] are generally those to whom fishers sell their catch in bulk while the fishers who

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[161] Sometimes, people are found waiting at the fish base for the fishers to return with their catch, with hope to buy directly from returning fishers. Some people prefer to buy this way because it allows them to secure fresh fish or a certain type of catch at a better price as the fishers usually sell at wholesale price. But fishers usually have to be persuaded to sell the fish directly, although they would rarely refuse when they return with a good catch.

[162] *Towkay* is a word taken from the Chinese language to mean 'the boss'. It is refers to owners of capitals or more widely to anyone who owns an enterprise.

sell them fish are known as their *awak*[163]. In Setiu, the relationship between an *awak* and his *towkay* can derive either bonding, bridging or linking type of social capital.

According to the Committee to Investigate the Fishing Industry in 1956, the *towkay-awak* relationship has long been a common feature of the dominated fishing sector in the West and South of the Malaysian Peninsular, where the *towkays* were dominantly Chinese capitalists who are not directly involved in fishing operations. However this is not the case in in Kelantan, Terengganu and Pahang. As recent as their report date in 1956, capital investment in fishing operations was still raised by Malay individuals -either the leader of a fishing group or more rarely a non-fishing capitalist- while the Chinese entrepreneurs were then operating mainly in post-fishing industry such as anchovy and dry fish processing. Fish *towkays* in the region did not participate in the fishing operations but bought fish only once it was landed, and the sale of fish was then an open market affair very similar to the existing whole-sale fish markets today, and the capital owners acquired a substantial share of the catch in return for their investment. But Firth (1975) noted that the appearance of the *towkay-awak* fishing relationship in the post-independence era was a consequence of the modernization that was taking place in the Peninsular Malaysian East Coast fishery sector. There was an increasing demand of fresh fish which coincided with the improved transportation system after the Second World War, which led the *towkays* becoming involved in the production sphere of fishing. This involvement normally takes the form of investment in fishing equipment such as the boat and fishing nets that were used in the fishing operations in order to secure the catch. For this reason, being an *awak* for a

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163 An a*wak* is a crewmember or worker. But the term also refers to anyone who works for someone else as opposed to *towkay* who is someone who have people working for him.

towkay has a wider definition in the contemporary Setiu fishery context: it could mean fishing as wage-paid employment (providing only labour) or just selling one's catch to someone.

In the case where an *awak* is just a fishing crew that contributes his labour to the operations, he will be paid a wage in the form of a share of the fish income, which is the balance from the total fish income after the fishing equipment owner's share and all operating costs have been taken out, or net fishing profit. According to the most common rule of profit distribution[164], one third of earnings goes to the *towkay* who owns the boat while the remaining two thirds will be divided evenly with every fisher involved in the operations including the Towkay if he joined the fishing trip[165]. It was found that apart from the capitalist-entrepreneurs among them (Pok R2 and Pok A.T), the research participants generally did not accept the third share due to them as the boat owner whenever they go fishing with another fisher. They instead share the balance of the income made after taking out the fuel cost evenly between them[166]. This shares system is a typical risk-reducing[167] measure used in most peasant societies where even relationships among crew members and with the leading fisher are remarkably egalitarian (Acheson 1981).

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[164] Firth (1975) noted that there existed locally-specific variations in the distribution rule (see page 366 to 376).

[165] There are reportedly regional differences in profit sharing ratio. It was claimed that in Besut and Setiu, the crew had a smaller share to divide between them because the boat owner takes half of the profit.

[166] I suspect that this distribution rule is applied either because their boats were subsidised or because the maintenance cost for their type of small-scale operations (using fibre boats and off-board engine) were not very high.

[167] By allocating shares instead of wages, crew's motivation is effectively increased while the boat-owner's risk (in having to pay for the labour even when a small or no catch is made) is reduced.

This distribution rule which was also applied in traditional group fishing operations continues to be followed until this day even on modern commercial fishing fleets. However, in commercial fishing operations, the operating costs consist of the maintenance of the fishing equipment (boat and nets) and the wages that were given to a number of the crew members with specific functions[168] as well as fuel cost. In small-scale fishery, the operating costs are only fishing equipment and their maintenance as well as fuel.

For the cases where the fishers contribute more than just labour to the fishing operation, their bond to their towkay would depend on the type of *towkay-awak* relationship that they have between them (either as an employee working for an employer or an entrepreneur working for his investor or a mix of both), on which depends the level of social maintenance that is provided by the towkay to his or her[169] *awaks.*

> Pok Az: I used to be with that Chinese *towkay*, Awang. You wouldn't want to leave him, as he treated you so well. He really took care of us. If you have no money, he would lend some to you. But now that he's passed away, it felt different. It's hard to hang on to [his relatives who took over his fishing buying operations]. Let's say during the flood season: In the past, whenever that happened, which lasted for a few weeks sometimes, we'd go to him and ask for RM20 for example. He'd

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168 This applies to large scale fishing operations, where a number of key functions are carried out by specific fishers when fishing is carried out. In traditional fishing operations such as the lift net, there are dive masters and catch boat rowers while in modern fishing fleets, there are the engine-man, the light or *unjang* setter as well as the Tekong.

169 Because fishery is a predominantly male sector, a *towkay* is rarely a woman. During the field work, Mek Yang was operationg as a towkay but only to take over the fish buying business after the demise of her brother Awang.

give. But not with Malay (towkay). They'd say, "Oh, do you need to help that much?". And if you owed them RM50 for example and it's been a while, you'd hear them grumbling already. Not him. He was so easy. Even the price he took... The price of prawn was high only with him. With the Malay (*towkay*), no way! He'd [the Chinese *towkay*] give us more if he managed to sell for a higher price. But others would want to give us less".

(Household 2APAz, on 19 November 2008)

Pok Az's comments illustrate the social and economic maintenance provided by a *Towkay* to his *awak* in the form of credit facilities, especially during the off-fishing season or at the former's hour of need. But the most important role that *Towkays* play in their *awaks'* livelihood is by providing physical capital. Small forms of physical capitals such as equipment loan can of course be acquired through the extended family and friends networks mentioned earlier. For example, when one's own important piece of fishing equipment such as boat or engine breaks down or gets stolen, a loan is usually given by relatives who are not using theirs[170]. However, it would seem that for certain fishing equipments, a *towkay's* sponsorship is the preferred option. A fisher's bond to his *towkay* is usually comprised of the financial and physical capitals that are secured through this relationship, which is an asset that generates linking type of social capital. It is the most prevalent practice in the seasonal prawn fishing operations, to which the excerpt above refers[171].

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[170] Some people own boats, engines and other fishing equipment but do not use them either because they do not fish locally or have other day jobs.

[171] This is because the hokey prawn was a highly priced product that was only available during a short period of time between the monsoon and the new fishing season. For this reason, fish *towkays* would sponsor fishers with prawn nets to secure the catch. There was also the advantage of getting a lower price for a catch taken from a sponsored fisher, which the fisher quoted above was criticizing.

However, it is not only with *towkays* that a fisher would feel an obligation to compensate for borrowed equipment or money. Borrowing fishing equipment from a friend or a relative can also sometimes mean having to share a part of the catch, as explained by a fisher who was using his cousin's engine since his had been stolen:

> Jarina: So you have to pay your nephew? Same way as a rental?
>
> Pok Y: Yes. Everyday I take their portion out of my catch. So if I get RM100 after I've taken the fuel cost out, I'll put aside their share. Say I make RM170, I take out RM50 for the fuel and then from the RM120 balance, I'll give RM20 to RM30 to them. If I get a lot, I put aside more for them.
>
> (Interview at household 2BPY on 20 September 2008)

In contrast to exchanges with *towkays,* borrowing from family and friends is generally not perceived to be a business deal, but a favour which could threaten a good relationship. Sharing a portion of one's profit with a relative or friend to return the favour is not regarded as a great profit loss if compared to having to sell one's catch at a lower rate. Borrowing from friends and family therefore is preferred over borrowing from *towkays*. But a *Towkay* never lends equipment to fishers; he either purchases the equipment to be used by the fisher against a monopoly of his catch, or lends money for fishers to acquire their equipment, which morally bounds them to him as well. While the former, which is practised widely in Rhu Sepuluh, is claimed to be advantageous by some fishers, the latter, which is the model used in Gong Batu, seems to put local fishers in a gravely disadvantaged position.

The influence of location and type of fishery on towkay-awak relationship

In Setiu, there are two distinct types of *towkay-awak* relationship. The first is what I term as the normal fishing *towkay-awak* relationship that concerns fishing during normal season. The second is the prawn fishing *towkay-awak* relationship which exists only for the sake of securing the much sought-after Hokey prawns that are only available during the monsoon season. But further to this, the geographical and infrastructural set ups of the two case study sites have significant impacts on the local fish market scene, creating a high demand fishery sector in Rhu Sepuluh but a low demand one in Gong Batu.

Rhu Sepuluh is considered a high demand fishery sector, as its location and physical infrastructure make it a popular landmark for customers in search of fresh fish catch. The village is located sixty kilometres away from the state capital, with fish landing points as well as a local fish market located just off the main coastal road from Kuala Terengganu to other major cities in the North-Eastern region such as Jertih, Kuala Besut and Kota Bharu. Because of its relative proximity to the state capital and its well located fish market facilities, there are always customers from the area and beyond who frequent the fish market[172] where a few fish *Towkays* compete to sell fish caught by the local fishers. Here, fishers as *awaks* have more bargaining power than the competing *towkays*. In Gong Batu, which is categorized as a low demand fishery sector because of its relative isolation, the market is dominated by one *Towkay* who enjoys a monopsony[173] of the fish market. The village is it located further north at eighty-five kilometres from the state capital and its fish landing facility is located by the Setiu river, which is further off the main road to Kuala Besut by which the village settlement is located. Therefore, while the

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[172] Customers sometimes even buy straight off the returning fishing boats whenever there is an opportunity to do so. Although they admit that selling their fish directly to customers is fun, fishers claim that they prefer to sell their fish to their *towkays*.

[173] A market situation where there is one buyer among many sellers.

location of this facility has the advantages in fishing operations (in reducing boat maintenance cost and providing easier access to the sea), its relative geographical isolation creates a marketing disadvantage. Instead of a fish market, there is only one fish buying facility run by an entrepreneur, TJ in Gong Batu.

The difference in fishery sector demand between these two localities creates two distinct models of patronage. In the high demand fishery sector of Rhu Sepuluh, normal fishing *towkay-awak* relationship concerns only the buying of the catch. Besides taking some ice from their *towkays*, the Rhu Sepuluh fishers use their own fishing equipment. There is therefore a purely buyer-seller relationship only between these fishers and their fish sellers. The *towkays* are not only among the local fish market sellers but are also from other areas. In this type of relationship, a *Towkay* commits to buy the daily catch brought in by his *awaks* at an agreed price. Due to the high demand market situation, the *awaks* in Rhu Sepuluh are paid a very competitive price on a daily basis. This is because without any equipment sponsorship, the fishers are free agents who could change patrons when not satisfied with the treatment they get from the existing one. Besides price-related issues, defection could be caused by many other factors, such as the *Towkay's* refusal to take all the catch that a fisher makes when a glut occurs. This is the reason why the *bubu* fishers and the gillnetters, who can sometimes bring in 50 kilogrammes of catch each on good fishing days, sell their fish to Jalal - a fish buyer from the state capital- instead of selling to the local ones. As retailers, the local fish market sellers have a limited capacity to buy fish while Jalal, a fish whole-seller is able to take whatever catch they make. This proves that seasonality can influence and shape social capital, where it is not only the type of resource, but also the

seasonality of this resource that determine whom fishers affiliate with. Furthermore, Jalal is said to be a good *Towkay*:

> Jarina: Has it been a long time that *Towkay* Jalal does business with all of you?
>
> Pok Su: Yes, it's been quite a while. More than a year now. We used to sell to others last time.
>
> Jarina: Quite recently then. And he pays on the spot?
>
> Pok Su: Yes. But when he's short, because sometimes there's so much fish, he will pay what he has and the next day, he'll immediately pay the balance.
>
> Jarina: And he never refuses any fish, right?
>
> Pok Su: Yes. Only difference is when there's a lot of fish, he probably will pay us a bit lower rate. For example when there's a lot of *kembong*[174], he will ask us first. He'll say, for a fish that's RM5 for example, "there's a lot of *kembong* already. Can I take them at RM4.50 instead?" If we say no, he'll pay us the RM5 per kilo but if we say "yes you can", he'll take it at the negotiated price. Which means that he's someone who's willing to compromise. And when there's little fish, he'll just take it "roughly". If there's not even enough to cover the fuel cost, he'll make it so that it does. For example, the fuel cost is RM40. He'll pay us at least RM40 even if the fish actually is not worth RM40 that day. He thinks of our welfare, to make it easy for us. So it's very easy to work with him.
>
> (Interview with household 2BPSu on 24 Sep 2008)

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[174] Indian mackerel

Jalal is considered an ideal *towkay* for these fishers because he pays a fair price for all the catch that he takes from them and looks after his fishers well. Once, about a week before the end of Ramadhan[175] celebrations, I found him distributing oranges to all his *awaks*. Such small gestures and his good business ethics ensure loyalty from his *awaks* who genuinely care for his welfare too. I often heard fishers say "Poor *Towkay*... it will not be worth his fuel and time today" upon returning from a bad fishing day. The same is heard when a fisher makes only a modest catch but is confronted by fellow villagers who demand to buy their fish directly. His *awaks* want to make sure that Jalal's efforts in coming all the way from the city centre to buy their fish are compensated. Both parties therefore try to maintain a good *towkay-awak* relationship.

Although one may sell his fish to a less generous buyer for the sake of maintaining social bonding or bridging capital with a kin or friend, the Rhu Sepuluh fishers are by and large rather free to choose a *Towkay* to sell his catch to during the normal fishing season. This is because they do not depend on their *towkays* for equipment support. The situation changes during the prawn fishing seasons as most fishers resort to using nets that are sponsored by their prawn season *towkays*, which are not necessarily the same as their normal season *towkays*. Here, linking type of social capital relations prevail, and the most preferred affiliation is to the local Fisherman Association which exceptionally offers a RM2 bonus scheme for each kilogramme of prawn caught. For the sponsorship of the net, the prawn *towkays* gets to buy the prawn that their *awaks* catch at a rate that is usually much lower than the price that one would be paid for prawns caught with a self-owned net. The

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[175] Muslim fasting month

difference could be as much as RM10 per kilogramme. Despite this, being an *awak* during the prawn season is still considered a better option, as Pok I explains during an interview:

Jarina: Whose (prawn) net do you use?

Pok I: The (fishermen's) association's. If we didn't get from the FA, we could also take from the (individual) *towkay*. The capital needed to buy the net is big. About RM40 to RM50 per set.

Jarina: And how many sets do you need ideally?

Pok I: Twenty sets. But we use other people's. If it were ours, if they get damaged we'd lose. But if it's theirs, whenever they are damaged, we could just ask for more. And whether we get (prawn) or not, it doesn't matter. If it were our own, if we don't get any (prawn), we'd face a loss.

Jarina: But how long could you use the nets that belong to the *towkay*? Do you use them just for one season and then you have to return them or how?

Pok I: No. You just keep using it, and they'll replace with another ten [next season].

Wife: You use them until the nets are completely gone!

Pok I: You see, when you first get the net, they give you twenty sets. We use it for this season. That's with good *towkays* of course. Then they'll give you another ten new sets next season. So, you use half new and half old nets. Next year, that one will get old, they'd buy you new replacement sets. So, you always get ten old and ten new nets.

Jarina: And you have to pay nothing to them, but must sell your catch to them, at a good rate, or lower than others?

Pok I: A bit lower.

(Interview at household 2API on 22 October 2008)

The logic used here is financial risk aversion, which is not unlike the reasoning used by Setiu fisher in their fish-farming ventures where human capital (for example labour effort to catch fish fry) is willingly spent more to avoid using financial capital (for example to buy fish fry). Risk-aversion is the preferred strategy in physical capital acquisition because "fishermen, with daily income, often very irregular, must calculate against uncertainty. He must think of saving in small increments; he cannot set aside so much in bulk and divide for daily consumption the remainder into appropriate fractions" (Firth 1975:3). Prawn fishing particularly is a highly unpredictable venture carried out in dangerous conditions, causing heavy wear and tear to the nets during usage. For these reasons, many fishers prefer not to absorb the risk of losing money in the prawn net investment, but play safe instead by using sponsored ones.

As mentioned above, unusual resource conditions can threaten otherwise positive working relationships, and there were complaints of prawns taken at too low a price following the exceptionally good prawn season in 2008. An elderly fisher attested that it was a phenomenon that he had never seen before in his long life at sea, with fishers catching between thirty to two hundred kilogrammes in just one outing. But the big volume of catch also created a bigger sense of loss among fishers who did not feel that they were given a fair price by their *towkays*, and many consider going on their own in the coming season:

Pok M.O: I usually go prawn fishing for Wan Din. But this year I think I don't want to work for him. I want to go own my own instead. He takes advantage of me. He buys the net for us, ten sets altogether at

perhaps RM30 per set. So he has spent only RM300. But he pays us only RM26 a kilogramme. That means he takes about RM4 profit per kilogramme, if the price is RM30. So, with 100kg, he's made RM400 profit and on 200kg, he's made RM800. He's made net profit of RM500 there. And that is when we take RM30 per kilo as the sale price. Sometimes even as we hand over our prawn catch, I'd ask "Is the prawn at RM26?" He'd say "yes" and would ask me "how many kg Li?" and I'd say "100". Then, just as I finish weighing the catch, comes maybe a Chinese fellow and asks him whether he's selling the prawn and if he is, how much. He'd sell them for RM40 or RM35 a kilo. Right in front of my own nose. The prawns are still on the scaling machine, he's already selling them at 35! Just like that, he takes almost RM10 profit a kg in front of us!

(Interview at household 2BPMO on 31 October 2008)

The 2008 prawn season has indeed stirred quite a commotion in Rhu Sepuluh fisher households, with some fishers admitting to selling some of the prawn on their own because they have invested some money in the net as well, which they claim gives them the right to take the corresponding percentage of their investment from the catch. But "how can you claim your share when you can't tell whose set of net caught the prawns in such cases?" exclaimed another fisher, arguing that there is a lot of questionable activity in the prawn *towkay-awak* relationship. However, not many fishers in Rhu Sepuluh will forgo their sponsorship simply because prawn fishing is much too risky a business to undertake without the security of *towkay* support. Arguments over price are primarily enacted in anticipation of the yield in the coming prawn season. If the yield is expected to be as good as in 2008, fishers have bigger leverage over the *towkays* to negotiate a better price for their catch because the *towkays* will

want to avoid losing their sponsored *awaks*, as this would mean having to pay more to acquire prawn from self-sponsored fishers. But should fishers decide that there is more to gain by investing in the net themselves, they also have to assume a higher financial risk should the 2009 season be a disappointing one. This is a gamble that few fishers would actually be willing to take. So what most fishers are hoping to achieve as more and more of them talk of buying their own net is to engage in a price tag-of war with their *towkays*.

In the case of Gong Batu, there are mixed opinions regarding TJ, the sole *towkay* among his *awaks*. To some, he is considered to be a positive contributor to Gong Batu small-scale fishery, having initiated its development about two decades ago when he arrived to work at his brother's fish farm. He eventually took over the farm and soon became the biggest fish farmer in the Setiu lagoon. At this stage, he began selling fish feed which he stocked in large volume for his own fish farms to other fish farmers in credit. Since there was virtually no fishing facility in Gong Batu (Ishak and Chang 1993), he began sponsoring a few line fishers from Beting Lintang as *awak*, following the advice of a friend who was a local fish-farmer. By maintaining the *awaks*, he helps the fishers raise their necessary capital to equip themselves (through cash credits) and buys their catch. He does not fit into the category of non-operating owner as he does not invest directly in the fishing operations. Instead, he maintains his role as a fish buyer. As more and more small-scale fishers from Beting Lintang began operating from the Gong Batu jetty[176] to catch fish and squid during normal season fishing and prawn during the monsoon, the local fishery

[176] Although the village of Beting Lintang is located some 15 kilometres North from Gong Batu, its sheltered, close to the sea opening, riverside jetty makes an attractive alternative to beach landing or up river jetty in Beting Lintang. With a motor-bicycle, travelling to the Gong Batu jetty takes only twenty minutes and offer huge savings in fuel cost.

became more active and began attracting locals who were then either working away in commercial fishery or involved in more traditional types of fishery such as *Gelama* and anchovy fishing. As of today, there are twenty-three registered local fishers and a dozen more from Beting Lintang who operate from the Gong Batu fishing base, and all of them sell their fish to TJ, at a price that is commonly known to be much lower than in other fishing bases such as Rhu Sepuluh and Kuala Besut.

TJ is by and large the main *towkay* in Gong Batu although, Pok M.A and Pok R2, who sell their own fish, claim to have started buying fish from the local fishers before he did. Both M.A and Pok R2 claim as soon as TJ began his operations, all the other fishers began to sell their catch to TJ because they prefer to work with outsiders even if the terms are less attractive. But it is more probable that TJ is considered a better option for a *towkay* because he has demonstrated his ability to financially support fishers under him with the Beting Lintang fishers. Furthermore, the other two are largely considered to be successful fishers, while TJ is considered a businessman with firm financial resources. He is therefore perceived to be in a better position to take care of the returning local fishers with his bigger capital outlay. Therefore, affiliating with him helps the Gong Batu fishers create the linking social capital that they desperately need. However, a few others have a different opinion on the matter, and consider TJ to be exploiting the local fishers who have no choice but to accept his terms due to their indebtedness:

> M: If the price were good, I would not mind making *bubu* again. But they're too low. It's the same with crab netting. (But) the price offered is only RM8. That would not be profitable if we take into account the maintenance cost. You have to repair the net often. Look at that net. I

decided not to repair because the sale price is so low, at RM8 only. It would not be profitable to repair it.

Kak J: That's why he didn't feel motivated to repair the net and left it like that instead.

Jarina: In Rhu Sepuluh, some nets are provided by the tauke.

M: Yes. There are many *towkays* there so they provide the net to secure the catch. Not like here where everything is sold to him (TJ). So there's no competition.

Kak J: For small Indian mackerel, he takes RM2.5 only right?

M: Yes.

Jarina: Don't the Besut folks come here to get the fish?

M: No, they don't want to disturb him.

Jarina: But people don't get angry with the *towkay*?

M: Well, they can only complain behind him.

Kak J: People are also afraid to offend him.

M: That's right. It's because they think that if ever they get an engine break down and need money to repair the engine, he'd be the one who they turn to. So they don't want to risk their relationship with him. That's how they are bonded to him. So whatever price he gives, they have to accept. But for us, we can't accept that.

Jarina: So you sometimes sell to other buyers?

M: Yes.

Kak J: We have no choice if we want to make it. If we lose RM50 a day, that's already two containers of fuel, you see.

M: Some owe the towkay RM2,000 or RM3,000. That's why they can't say anything. When they need money for their children's school needs, they look for him. When their engine breaks down, they look for him. When they want to buy net, they look for him. To buy a new boat, they

look for him too. Those who have fish farm also buy the fish feed from him.

Kak J: If he finds out (that we sell to others) he would not be happy, Jar. But we have no choice when we really need to make more money. RM50 difference a day, you know! How much is that in a week, already? Enough to cover the kitchen expenses. So we have to be cunning.

Jarina: It's not wrong because you do not owe him anything, right?

M: True but we'd feel uneasy because we see him there every day.

Kak J: We are the one who feel like we're stealing from him. But we're not. Still the guilt makes us feel that way.

Jarina: Anyone else here sell outside?

M: I don't think so. Pok J may be [the only other fisher] doing it as well.

Many local fishers are reportedly indebted to TJ, who actually does not sponsor their equipment, not even for prawn fishing. This is because Gong Batu is a low demand market due to its geographical location. There is therefore no fish buying competition from another *towkay*, which means that he as the sole buyer does not need to secure the catch. Instead, he advances fuel, small boat or equipment parts and ice for daily operations which he deducts from the payment that he makes to the fishers at the end of the week, on Fridays. However, he lends them cash to maintain, repair or acquire their fishing gear or to fulfill other immediate financial needs. These loans are given without interest, as interest taking is prohibited in Islam[177]. Although similar to friendly loans in guise, they however, do incur 'hidden interests' on the

[177] See Firth (1975: 167-176) for a detailed overview on the various ways that interest could still be recovered by a lender using specific loan terms agreed upon with the borrower as practiced in the region at the time of his research (1939-1963).

fishermen who borrow from him as such social investments suffice to tie his *awaks* to moral subservience, which may explain the general acceptance, albeit with some grumbles, of the low prices he sets by most of the fishers.

As for prawn fishing, Gong Batu fishers in comparison to their colleague in Rhu Sepuluh, have to buy prawn nets from TJ, often in credit, which repayment he will deduct from the sale of the catch that is bought at a price fixed by him. A better price is given to those few who are able to pay for their nets in cash, but the majority of Gong Batu fishers are forced to absorb the financial risk from prawn fishing without benefiting from a higher return in profit for their risk taking. In this sense, these Gong Batu fishers have fallen into the vicious cycle of monopsony that was first highlighted in 1964 by Engku Aziz as one of the factors that perpetuate rural poverty in Malaysia, if not an extortive capitalistic vice, due to the low demand market character of the Gong Batu fishery. However, without the credit facility that TJ offers, there will be fewer local fishers operating in Gong Batu.

Most of small-scale fishers in Setiu are returning fishers who used to work away in bigger fishing ports in South Terengganu and neighbouring state Pahang for commercial fishery (in trawl or purse seine boats) as ordinary non-owner-operators. Among the eighteen fishers interviewed, only three have been working mostly in Gong Batu and another four in the bigger fishing facilities in nearby Kuala Besut or Fikri. Unless they were *Tekongs* or *Juruselams* who earn a lucrative income in commercial fishery, former commercial fishers have more difficulty to change their status to owner operator according to Ishak and Chang (1993:81) "since the saving of ordinary non-owner-operator (ordinary crew) is very much lower than the capital investment required. A crew member would remain one unless there is some form of assistance from

the State". As discussed in Chapter II and IV, the Malaysian government had, as early as 1952, begun various schemes to assist such fishers acquire the necessary physical capital such as boats and nets but very few in Gong Batu have had access to these schemes, unlike their colleagues in Rhu Sepuluh, due to factors that will be further discussed later in the chapter. Their only option is to acquire the boats themselves and very few have the possibility to do so without credit assistance from TJ.

The preference for TJ's patronship may also be related to his role in the local fish farming industry. To the other fish farmers, not only is he the most successful among them but he is also regarded as their saviour. During an interview, TJ explains that he is a fish farmer first. Being a fish *towkay* is just a secondary business and it is just to help the locals. Those who are fish farmers, which most of the Gong Batu fishers are, may indeed appreciate TJ's consideration in his dealings in fish farm related matters. He is said not to claim the credit accumulated by fish-farmers through fish feed purchases until their fish are successfully sold, and does not insist when repayment fails to be made even after the sale. He also helps fish-farmers to look for markets to sell their fish and prioritizes the sale of fish from the other people's cages first before his own. Also known to be very vocal, he is said to be readily willing to fight for the local fish farmers' right to subsidies and aid. During my fieldwork for example, he was able to increase the amount of fish feed subsidy for the fish farmers in Gong Batu from just four bags to ten each. He indeed is considered by some as their champion, who cares more about them than even their own *Ketua Kampung*[178].

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[178] Village head

But not every participant in Gong Batu shares this sentiment. The couple in the earlier interview comes from a household that has been able to retain its financial independence from TJ by not resorting to him for loan to acquire fishing equipment or fulfill its financial needs. They are not involved in fish farming either and therefore have never benefited from his various fish-farming related assistances mentioned above. They therefore do not feel indebted to him and feel no loyalty towards him, and their feeling is shared in a few other households that are in the same (financially independent) situation. This small group of people are therefore unhappy with the low price imposed by TJ and would actually prefer to sell elsewhere for a better price. They are indeed among the most enterprising lot of fishers in the village and perhaps most emancipated too. But even those in this group who are supposedly free from his patronage such as the successful Pok R2 admit that they do not like to openly take their catch to sell themself, especially when TJ is around at the jetty. "It doesn't feel right" he says, while Kak J of the above interview even admits to "feeling guilty like they've stolen something from him" every time her husband M keeps a portion of their catch to be sold to another higher bidding buyer when they actually have full right to do so. It implies that despite their criticism on TJ, a certain authority is attributed to him in the local fishery scene. He has become some sort of a modern-day feudal lord in this fishing community that is in transition from traditional to modern ways of life. Thus, he is appreciated by those who feel his protection but criticized by those who believe in full emancipation.

Social capitals from organisational arrangements among Setiu fisherfolks.

A fisher household in the East Coast during the pre-independence era was organized between family, village and working arenas that were more often than not interrelated, and has very limited contact with the State administrative framework besides the *Tok Penghulu* or *Ketua Kampung*[179] and the *Pengawa*[180] whom they refer to for various registrations of civil statuses and other legal matters. Its contact with the political institutions was even lesser (Firth 1975). But village organisation, which has also become more complex, is no longer the only structure for fishing communities in this region. Although family, village and work arenas are still the main social frameworks for a fisher household, there are now new organisational structures which influence their livelihoods, and offer them the opportunity to have access to more resources by building on their social capitals either horizontally or vertically.

Fishers' Organisations

Until as late as 1956, the only forms of organisation among Malaysian fishers in the East Coast were the loosely coordinated traditional fishing groups (Committee to Investigate the Fishing Industry 1956). One group member was solely assigned with the task of selling the catch made by the group, either to fish whole-sellers or other types of buyers in a whole-seller's market setting. However, due to the growing demand of fish, this system was predicted to transform into something more similar to the capitalist-led fishing markets in the West and South coast regions of Peninsular Malaysia[181]. Because such market system is prone to price-abuses by middlemen and fish *Towkays* who

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[179] Village head

[180] Government officer in charge of sub-districts or parishes.

[181] Fishermen, either individual or in groups were assessed to be incapable to undertake capital investment required to modernize their fishing operations due to lack of steady income and therefore savings (Al-Harran, Mustafazar and Haniza 1994).

monopolize the fish sales through their capital investment in the fishing operations[182], the 1956 Committee to Investigate the Fishing Industry's first recommendation was "that fishermen should be encouraged to form themselves into Associations or Co-operatives (...) [as] such associations can be of great assistance in providing co-operative resistance to the exploitation suffered at the hands of middlemen (Committee to Investigate the Fishing Industry 1956:5).

As a response to these anticipated and real changes, *Syarikat Koperasi Nelayan* (SKN), or Fishermen Cooperatives, were established in various fishing districts of the country to help create a more market-savvy community of local fishers, and to coordinate activities that contribute towards better social well-being of their members while informing policy makers with input from the fisheries sector. Highly promoted and supported by the government, the SKN were also attributed licensing and credit facilities. But because SKNs soon became no more than a new playing field for middlemen and *towkays* who dominated the organisation, the institutions failed to meet their objectives in serving the interest of the greater majority of fishers (Al-Harran et al 1994). Due to this, the *Persatuan Nelayan* (PN) or Fishermen Association was introduced in 1970s, with its registration officially made in 1984 following the resolution of the Fishermen Convention held that year. Its membership is exclusively for fishermen, unlike the SKN that was open to all. Governed by the LKIM, these associations are represented at district, state and national levels.

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182 The price-fixing by capital-owner was reported only in the Chinese dominated fishing industries in the West and South Peninsular Malaysia. In the North East Coast region, the capital owner is repaid in the form of a share of the earning made by the fishing operations (see Firth 1965: for details on the profit sharing mechanism).

It has been suggested that "under certain conditions government actors have been able to widen resource access and control in rural areas" (Bebbington 1999:2038). But in the case of the government-backed PN, it instead generated confusion among Malaysian fishermen because many fishers end up joining both the PN and the SKN (Al Harran et al 1994). In Setiu, there is almost no mention of SKN by the local fishers, and so the PN, which is based within the office of its parent organisation LKIM's district office in Rhu Sepuluh, is considered the only fisher-oriented organisation dedicated to fishers' welfare. Most of the LKIM funded aids and subsidies are channeled through the PN, and the two entities are always considered as inseparable. But many fishers have become disillusioned with the organisation, which they claim only benefits certain members. The fishers in Gong Batu go further by claiming that because they are not represented in the PN's board, they have been purposely denied access to aid. According to them, the PN provides better services to their members in the Rhu Sepuluh-Penarik area and not those who are located further away, such as in Fikri or Gong Batu. They suggest this is because most of the members of the PN board and LKIM's staff are also from the village, therefore creating an advantage for the local fishers who have priority access to the PN resources though kinship, friendship and community networks. Thus Rhu Sepuluh fishers are said to have better access to other fisheries-related programmes and aid schemes.

According to the equipment survey in both villages, it would seem that there is indeed an imbalance in the distribution of fishing gear. Only 7 fishers in Gong Batu have benefited from a boat or engine subsidy compared to 15 of them in Rhu Sepuluh. Some of the former have even had access to upgrades and replacements, which is unheard of in Gong Batu. It is possible that the lower number of recipients in Gong Batu is due to its relatively new fishing

base status, where there are very few fishers who have been fishing long enough locally to be eligible for the boat subsidy allocation in either 1994 or 2004. In contrast, the Rhu Sepuluh fishing base has always had a stronger representation in the local fishery. But this argument is contestable because most of the research participants in Rhu Sepuluh have also been fishing away from their village most of their fishing career and have only started fishing at home recently. This has not prevented them from acquiring a subsidised boat. In fact, there are a number of subsidised boats found unused on the Rhu Sepuluh beach, as their owners work for commercial fishing operations away from Setiu during normal season and only use them during the monsoon season to go Hokey prawn fishing. There is therefore basis to suggest that the Rhu Sepuluh fishers have benefited more than those in Gong Batu, and the reason may well be due to their social capital advantage, which is evident in the next section that discusses the role of strong vertical associations in improving access to artificial reefs programmes.

Social capital, institutions and artificial reefs

Rhu Sepuluh fisherfolks seem to enjoy better access to income-enhancing livelihood resources thanks to a better social capital portfolio that is made up of strong organisational-based assets if compared to the Gong Batu fisherfolks. This seems to be particularly evident in their access to the artificial reefs programmes because in Malaysia, where such programmes are government agency-driven, there is a very close relationship between politics and government agency's policy and implementation. The uneven distribution of reefs under the artificial reefs programme is often used by fishers in Gong Batu to further suggest their disadvantaged position:

Pok L.I: Once, the LKIM did come and say that they wanted to set up anartificial reefshere. So my friend and I who are fishers all got ready to assist them with the set up. But in the end, they told me that they didn't manage to get a barge to carry theartificial reefsstructures over here. But I think that was not the real reason. I think there was a sabotage.

Jarina: A sabotage? By whom?

Pok L.I: The LKIM folks too. They took it elsewhere. If there were a lot of AR, there will definitely be a lot of fish. In front here, there're not many natural reefs. Only at three locations. These are good for fish. But there in Penarik[183], there's a lot more.

(Interview at household 1APLI on 21 May 2009)

There are indeed more artificial reefs (23 sites) along the Rhu Sepuluh-Penarik coast (which includes Chalok and Chepu) than any other sites in the district (see Table 6 on artificial reefs distribution in Setiu), of which Gong Batu coast has the least number of sites (1 only, in Fikri). But when asked to explain this situation during an interview in April 2008, officers from LKIM explain that it is because Gong Batu waters, with a soft, muddy seabed are not suitable for artificial reefs deployment, while the Rhu Sepuluh-Penarik waters, with a sandy seabed, are perfect for it.

[183] Penarik is the what the coastal area between Rhu Sepuluh and Penarik village is called. This is because Penarik village is oldest settlement in the area, and has existed when Kuala Setiu was still inhabited.

Table 6 Artificial reef distribution in Setiu (as of 2006)

Location	Year	Cost (in RM)	No of units	Material
Timur P. Cepu	1983	10,000.00		
Pulau Cepu 1	2001	100,000.00		
Pulau Cepu 2	2004	482,825.00	31	Protek
Pulau Cepu 3	2004	755,102.00	37	Seramik
Pulau Cepu 13	2004	367,347.00	18	Seramik
Pulau Cepu 14	2004	755,102.00	37	Seramik
Pulau Cepu 15	2004	755,102.00	37	Seramik
Pulau Cepu 4	2004	188,000.00		
Pulau Cepu 5	2005	612,903.00	38	Seramik C
Pulau Cepu 6	2005	612,903.00	38	Seramik C
Pulau Cepu 7	2005	612,903.00	38	Seramik C
Pulau Cepu 8	2005	580,647.00	36	Seramik C
Pulau Cepu 9	2005	645,161.00	40	Seramik B
Pulau Cepu 10	2005	645,161.00	40	Seramik B
Pulau Cepu 11	2005	645,161.00	40	Seramik A
Pulau Cepu 12	2005	645,161.00	40	Seramik A
Pulau Cepu 13	2006	NA	21	Sotong
Kg. Mangkok 1	1984	NA		
	1993	10,000.00		
	1999	111,900.00		
P.Lima, P.Redang	2004	140,175.00	9	Protek
Kg. Mangkok 2	1985	NA		
	1998	90,200.00		
Penarek	2000	18,750.00	50	Palagik
Penarek Baru	1985	NA		
	1993	10,000.00		
Telaga Papan 1	1986	10,000.00		
	1991	10,000.00		
	1992	10,000.00		
	1992	10,000.00		
	1994	10,000.00		
	1997	39,960.00		
	1999	111,900.00		
Karang Bari	2004	2,938,776.00	144	Seramik
Fikri	1984	8,131.00		
	1990	20,000.00		
	1991	10,000.00		
	1992	10,000.00		
	1992	10,000.00		
Bukit Chalok	1984	21,413.00		
	1992	10,000.00		
	2001	99,500.00		
Rhu Sepuluh 1	1986	16,079.00		
	1988	12,209.70		
	1989	10,000.00		
	1992	10,000.00		
	1994	10,000.00		
	2001	30,000.00		
Rhu Sepuluh 2	1998	92,000.00		
Rhu Sepuluh 3	2001	179,100.00		
	2001	173,340.00	642	Lobster
	2001	6,300.00	14	Sine Slab
Rhu Sepuluh 4	2003	3,390,000.00	178	Saramik
Rhu Sepuluh 5	2004	50,000.00	200	Sotong
Jali, Rhu Sepuluh	1996	40,000.00	100	Palagik
	2001	100,000.00		
Total cost (approximate)		7,458,708.70		

This explanation is however rejected by Gong Batu fishers for they insist that their waters have hard bottom areas too[184]. Every fisher interviewed in Gong Batu agreed that artificial reefs could make a difference in increasing the local in-shore fishery resources as well as deterring encroachment from the trawlers that are considered to be the biggest threat to the small-scale fishery in the area. Due to the perceived benefits of artificial reefs programmes, these fishers are frustrated when their demand for more artificial reefs is not heeded by the LKIM. In September 2008 however, I was informed by the same LKIM officer I met earlier in April of an artificial reefs deployment exercise in Gong Batu waters. But when I asked the Gong Batu fishers about this in May 2009, not everyone knew about the deployment and only two fishers knew exactly where the site is located. However, none of those who know about the newly deployed artificial reefs had been informed by the LKIM about the deployment exercise. Instead, some individuals had seen the barge carrying the artificial reefs structures in the area while others found out when they heard of a trawl net being caught on artificial reefs structure at a site in their waters. This raises the issue on the lack of information sharing on artificial reefs related information with small-scale fishers who are supposed to be their beneficiaries, thus severely limiting their access to them.

In addition to the limited access to artificial reefs related information, Setiu fishers claim that they are victims of sabotage at artificial reef sites. Many who went looking for the site upon hearing about the deployment exercise claim that they were unable to find the location of the site because it had been sabotaged, with the marker buoy missing. They suspected that someone had

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[184] The question was asked during an interview that took place after an artificial reefs deployment exercise to which I was invited to witness in April 2008. By September, I was told that an artificial reefs site was being created in Gong Batu waters.

deliberately cut the markers off to prevent other fishers from finding the site. Those who know the location of the artificial reefs explained that they would never have found out themselves if it were not for their informants, who had also found out about the site by chance: Pok L.I and Pok D.S were given the information by a recreational fisher who detected the structures when he was using his sub-scan sonar. Similarly, Pok A was informed by a gillnet fisher who had accidentally got his net caught on the structure. Otherwise, the location of the new Gong Batu artificial reefs would still remain a mystery to local fishers as information on artificial reefs site does not seem to be accessible by them.

As discussed earlier, although there are many artificial reefs sites in Rhu Sepuluh waters, only one mid-scale fisher reportedly has access to this valuable information[185], which he does not share with the local small-scale fishers. While SEAFDEC's officer in charge of artificial reefs openly declares that his establishment does not share information on the location of their artificial reefs sites with fishermen to avoid usage by the former[186], the officer in charge of artificial reefs programme at the LKIM headquarters in Kuala Lumpur explains that their state and district officers are supposed to inform the local fishers through the PN. The Terengganu state LKIM officer claims that the PN are informed about the deployment activities and their assistance would normally be sought when deciding on the location of the sites. As per my observation during an actual deployment in the Dungun district, a fisher who was recommended by the local LKIM was indeed consulted in setting the

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185 The location of older artificial reefs is generally known by fishers probably because local fishers participated in their deployment while the newer sites (since 2003) were deployed without their participation.

186 The reasons for SEAFDEC's refusal to share information or involve fishers in their artificial reefs programmes will be discussed in the chapter VI.

location for an artificial reefs site in Jambu Bongkok. But according to the Setiu officer who is the brother of the infamous C.N, the Setiu PN's assistance is not sought because, as an experienced fisher and diver, he is able to personally recommend the sites.

Setiu fishers' claim on lack of access to artificial reefs information is not straight-forwardly verifiable based on the data collected. It must be mentioned that I was never denied access to the information on artificial reefs sites by any of the LKIM officers mentioned above. Indeed, a full listing of the geographical location (in longitude and latitude) of artificial reefs sites in the Terengganu state was made available to me to facilitate this research. Upon knowing that I had such a list, only a few fishers had asked me to get them the list. In Gong Batu, those who asked me the favour claim that they could never get it even if they asked for it due to the earlier discussed relationship disadvantage they suffer vis-à-vis LKIM. In the case of Rhu Sepuluh fishers, none was interested in getting the list, probably due to C.N perceived monopoly on the information. But it must also be noted that the artificial reef GPS coordinates are only useful for those that could use GPS units, therefore useless for most participants who depend instead on TGPS method. This may well be the main reason why the list itself was never of great interest to them. What would be more helpful for them are the physical markers, which explains their expressed anger whenever they speak of buoy-cutting sabotages at artificial reefs sites. Their main contention with LKIM therefore is on the agency's failure to ensure that these markers, which is key accessory to getting access to artificial reefs, remain undisturbed, or make the knowledge of the deployment activity widely available so that less abuse would be possible.

Fishers from both study sites also criticize the PN for the organisation's failure to address the issue of the encroachment of commercial fishing operations into the exclusive small-scale fishery zone (Zone A). With regards to trawlers, they generally believe that their calls for the withdrawal of all trawling licenses in A zone waters[187] and better enforcement against encroaching trawlers fall on deaf ears, because the PN Board consists of those who have vested interests in this type of commercial fisheries. As a result, these trawlers, which they liken to pirates, destroy the local marine environment and rape of all its fishery resources, as discussed earlier in Chapter III.

But trawlers are not the only illegal encroachers in their fishing zone. As discussed in Chapter III, night purse seiners are said to fish in the coastal waters too, especially at artificial reefs sites. Along with all the Gong Batu fishers, most Rhu Sepuluh fishers condemn the purse seiners operating in the coastal zone because although this type of commercial fishery does not damage the seabed in the same way as trawler fishing, they believe that the purse seiners' operations at artificial reefs affect their fishing at these sites, as discussed in detail in Chapter III. A few line fishers refrain from criticizing the purse seiners, however, and one fisher went even further by expressing his sympathy for the purse seiners when artificial reefs deployment disrupts the former's operations. But these fishers are also reliant on the purse seiners for their supply of bait and therefore also benefit from their success.

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[187] Trawl fishery within the A zone (from the beach until 5 nautical miles seaward) is prohibited by law. But special trawling licences are issued during the monsoon (when the sea level is relatively higher) to allow prawn fishery.

It has also been suggested that individuals who hold key positions in the government could informally facilitate the delivery of certain resources to the grass root (Bebbington 1999), and this is the case with a number of Rhu Sepuluh households. The households interviewed in Rhu Sepuluh all agree that they are in a more advantageous position than fishers from any other village in Setiu because the former deputy Minister of Agriculture, Tengku Mahmud, is from the village. Based on the accounts given on this former politician, he may well be Rhu Sepuluh's biggest social asset. Originally from the Kuala Setiu too, he is said to be the one who have made their relocation to Rhu Sepuluh possible. As a deputy Minister, he is said to have made sure that his constituents in Rhu Sepuluh and Penarik benefited first from all schemes developed by the agencies under his Ministry. Considering that political patronage plays an important role in socio-economic development in the country (Firth 1975, Shamsul 1985), the claims made on his role in creating a better access to various developmental aids for his constituents in Rhu Sepuluh-Penarik area may hold some truth.

Conclusion

This chapter explains the functioning of social capital for the participating households in Setiu in their livelihood making. It is indeed, as argued by Bebbington (1999), a capital which serves as a livelihood commodity for Setiu fisherfolks, facilitating the acquisition of other types of capital. To conclude, it is worth highlighting four major points with regards to the ways that social capital fit into the livelihood making of Setiu fisherfolks.

Firstly, there are traditional as well as new types of social assets from which Setiu fisherfolks derive varying types of social capital, from bonding to bridging and linking social capitals. For bonding social capital, social assets from traditional types of horizontal association such as extended family and fellow villagers are still important sources, although it is also originated from the more recently introduced but increasingly powerful village-level political association. This type of social capital primarily provides for various livelihood resources that are particularly needed especially by less affluent Setiu households to get by. But such networks, as suggested by Bordieu (1983), have negative implications not only on those excluded due to failure to conform to their narrow membership criteria, but also on those within the network whose further development in this transitional society is stifled by the social obligations that such networks impose on their members. For this reason, new types of networks has emerged as Setiu fishers also turn, if not prefer, to rely instead on bridging and linking capitals that they draw on particularly from their local networks of vertical associations. More suitable to the contemporary context of Setiu fishery, fishers' networks at sea such as their fisher-friends with whom they collaborate as well as on land such as their Towkay, help fishers to get ahead.

Secondly, my findings suggest that the local fishing institutions in Setiu already form, in principle, the best fishery management framework for the local fishery. Based on flexible and practical fishing knowledge-based principles that are sensitive to the socio-ecological contexts of Setiu fishery, they result in systems that this community is most compatible with. The fishing codes of these institutions allow fishers in Setiu to strategically move between different levels of association, and resulting from these relations use either bridging or linking types of social capitals, to suit their immediate or long term needs. Less popular however are the government-supported local fisheries institutions that were meant to provide important linking social capitals to this group of fishers due to the insititutions' perceived failures in assuming their role of protecting the interests of small-scale fishers.

Further to this, I argue, thirdly, that although some social arrangements at local level while beneficial to some groups of small-scale fishers, can be detrimental to others as in the case of the bait pact that exists between Rhu Sepuluh off-coast line fishers and local purse seiners. Other local institutions that govern Setiu fishery appear to provide a strong basis for an effective fishery management model. Closely related to important principles valued by Setiu fisherfolks such as effort recognition, the *unjang*-based codes of conduct, if revived and fully enforced, can potentially regulate the fishing activities in Setiu coastal waters, including at artificial reefs sites. Although no longer adhered to in full, the relevance of these fishing-knowledge based codes of conduct in the current fishing scenario in Setiu are however still acknowledged by all fishers involved in the research. Furthermore, it is a code that is easily adaptable to the concept of artificial-reefs. For these reasons, *unjang* based code of conduct can be used as a starting point towards developing an effective management framework for Setiu small-scale fishery and particularly in

managing artificial reefs related conflicts. However the local marketing institution of *Awak-Towkay*, which even in the seemingly disadvantaged low-demand situation in Gong Batu, does provide the best case scenario in the local fishers' post-fishing activities. This is because *Awak-Towkay* relationship is in fact influenced and shaped by many factors, including seasonality, where it is not only the type of resource, but also the seasonality of this resource that dictate the nature of alliance adopted by a fisher. Furthermore, there is a relationship between this market mechanism and the friendships that has been described earlier in the chapter, i.e they can be co-generated, making the interactions between an *awak* and his *Towkay* to mean more than just a purely economic exchange.

I would also argue that because of its social embeddedness (in relationships with other actors that are under the influence of various factors that are beyond their control), social capital is exposed to various externalities, making it a risky investment. However it is worth pursuing especially for the less affluent households who lack other means to secure their needed resources. With it, households of *orang susoh* are able to acquire indispensable livelihood support and resources such as credit, fishing equipment as well as information and access to fishing grounds. Investments are therefore made in enhancing and maintaining their social assets: they foster and nurture good relations with family members and their circle of friends at sea; play an active role in village life; abide by the relevant rules and codes that are associated with it; maintains their relationship with their *towkays*; and affiliate themselves with relevant organisations. Meanwhile, the affluent households in Setiu maintain instead a minimal presence in social village events and local civil society as well as retain their market independence. There is enough reason to suggest that their lack of participation may reside in the fact that they do not

find social capitals to be their most reliable livelihood resources because they do prefer instead, as already discussed in the previous chapter, to invest in human capital assets.

The various points made above informs that social relations and the capitals that small-scale fishers derive from them have important influence on their "relationship" with artificial reefs, and must therefore be given due consideration in artificial reef development as well as their evaluation because:

- through social capital, fishers are able to gain access to important resources that would otherwise be exclusively used, such as unjangs and (group owned) artificial reefs sites
- social relations between different groups of fishers influence the way that artificial reefs are used. For example, access to artificial reefs may be compromised or even willingly bartered to safeguard social pacts that are perceived to be more instrumental in livelihood making
- when incorporated as part of artificial reefs development and management practices, concepts of socially accepted local fishing norms and practices such as the unjang code could provide an excellent basis for a community-based local fisheries resource management mechanism in Setiu.

Chapter VII

Concluding thoughts: artificial reefs and Setiu small scale- fishers relations

This research was aimed at acquiring an understanding of the ways that artificial reefs have impacted the lives of their users. Its objectives were to dive into the unknown realms of fishing communities-artificial reefs relations that are little explored in artificial reefs performance evaluations that are currently much more "bio-economic inclined". This thesis sets out to describe and to explain the changes that artificial reefs have had in the lives of fishing communities from the historical, socio-economic, political and ecological dimensions of the relationship between artificial reefs and their users, based on findings from two case studies in Terengganu, Malaysia. In Chapter I, which provided an introduction to artificial reefs and their development in Malaysia, I discussed the need to address the existing knowledge gap in artificial reefs research. In Chapter II, I then reviewed the Livelihoods Approach and argued for its adoption as the research framework for a broader research context. In Chapter III, I introduced the small scale fishers of Setiu, and their various fishing strategies before launching into a discussion on their perceptions and self-assessment of poverty and wealth in Chapter IV. The chapter, in which discussions are closely linked to the complex dimensions of livelihood assets, paved the way for the following two, which discussed the two most significant elements of livelihood assets for the Setiu fisher-folks, namely human and social capitals. In this final chapter, I offer to tie these findings together in a

series of answers to questions posed by the research, thus concluding the thesis. In addition, I also share invaluable lessons learned from it, and last but not least, to make suggestions on future research.

Artificial reefs and their use, benefits and place in Setiu small-scale fishers' livelihood making.

There are three main keywords in this thesis: artificial reefs; livelihood; and small-scale fishers. The term 'livelihood' served as the point of departure in investigating whether artificial reefs have indeed been effective in improving the lives of small-scale fishers as they are supposed to. Thus, different components of livelihood making were examined and the findings are concluded into four points that serve to reply the questions posed by the research.

Firstly, this thesis has outlined the critical livelihood assets required by Setiu fisherfolks, and the various ways that they go about securing them. The research data seems to concur that poverty for Setiu fisherfolks is not measured based on what one lacks, but what one has at his or her disposal to make a living. As discussed in Chapter IV, this resulted in their renunciation of the poor status, as accordingly the poor could not make a living but these fishers, in varying degrees, could. Instead, the least affluent are referred to as those living in hardship or *orang susoh*, while the more and most affluent are categorized as those who could (*orang buleh*) and those who live in ease (*orang senang*) respectively. It appears that because the poor are those who are unable to make a living, this task is therefore seen as a duty for those who are not poor. This juxtapositioning means that the poverty status in the official (developmental) sense is unashamedly claimed by Setiu fishers of all three categories with a clear conscience because it entitles them access to various

government-provided assistances that help them in fulfilling this duty. As highlighted in Chapter III, the complex and contested reality of poverty and wealth must be understood, and close attention must be given to capture how well artificial reefs fit into their efforts in fulfilling their livelihood needs if artificial reefs are to meet their objective in eradicating poverty among coastal fisher-folks.

Of particular importance for both policy and academic considerations is the way in which the fishers define their assets, where both material possessions such as savings and motor-vehicles, as well as non material assets, such as social safety net provided by family and friends are included. For Setiu fisher-folks, livelihood assets are all elements that contribute towards improving their livelihood-making capacity, which transformation into financial, physical, human, social, and natural capitals prove helpful. These various capitals are used, exchanged, transformed and invested in by Setiu fisher households in their diversified livelihood making in ways that have previously been unacknowledged, particularly in legislation surrounding fishing and fishing communities, which often fails to acknowledge the range of assets drawn upon to support fishing and instead isolates interventions to those assets that are more easily associated with fishing (boats, reefs, nets, and so on). Fishing, however, is still considered their primary livelihood occupation, for which two types of capitals, namely human and social capitals are the assets most valuable, a point which I elaborate further below.

Secondly, while fisheries still have an important place in the lives of participating Setiu fisher households as explained in Chapter III and IV, artificial reefs presently are more profitable to specific types of fishers and in

certain conditions only. Setiu fishers, with their sophisticated knowledge on the marine environment and fish behaviour, acknowledge that artificial reefs are successful for enhancing the local fisheries resources that have been degraded due to overfishing since the introduction of large-scale fishing operations such as trawlers and purse seiners. However, as fishing grounds, artificial reefs are technically suitable only for small-scale fishers who fish using the hand-line or *bubu*, and not for crab, *Tamban* and *kaya* net fishers. Furthermore, the research has found that among these "technically able artificial reefs users", only full and part-time time bubu users (12.5 % of research samples) use artificial reefs. Indeed, artificial reefs are considered very beneficial for this type of fishing, but not necessarily the case for line fishers (60% of research samples) for whom these artificial reefs were developed. In fact, only a handful from this group actually fish at artificial reefs sites. This is a particularly important finding for future artificial reefs policy. It clearly demonstrates the danger of equating biologically enhanced fish resources at artificial reefs with benefits for their targeted users, i.e line fisher population in their vicinity. Indeed, inquiry into the "fishing realities" must also be made before such conclusions could be made.

Further to this, there are issues related to access to artificial reef programmes and to actual sites due to limited political support, absence of dissemination of related information, and unpunished illegal encroachment. While the first two issues could be addressed administratively, the last one, as explained in Chapter VI is a far more complicated problem to solve. This is because although purse seiner illegal operation at artificial reefs has adverse impacts on small-scale fisher's catch rate at artificial reefs, it is in fact tolerated

by those affected to protect their bait pact with the encroachers who in this case benefit more than they do from artificial reefs presence in Setiu coastal waters.

Thirdly, this thesis suggests that when it comes to livelihood making, especially when fishing is concerned, two strategies dominate: Reliance on either human or social capitals. Setiu fisherfolks depend heavily on their human capital, a livelihood resource that is most readily available to them: as discussed in Chapter V, labour (especially one's own, though also that of family and friends) knowledge and skills (both traditional ecological-based and modern), and health are therefore important 'starter kits' in livelihood pursuits both on land and at sea. While this strategy is adopted by every household as a prerequisite to get by, the most successful fishers and their households use it as a strategy to get ahead. Indeed, through various elements of human capitals, the most hard-working, skillful or knowledgeable among them are able to claim or identify good fishing grounds including artificial reefs, as well as use the most appropriate methods to benefit from artificial reefs sites. This is one of the most striking differences found between the most affluent households and the rest of the community: The less affluent fishers tend to rely more on their social capitals to improve their livelihood agendas that derive heavily from bonding and bridging types of social capitals, to compensate for their lack of linking social capitals, while the most affluent are able to bypass horizontal associations to build linking social capitals with vertical associations that is free from stifling social elements that the former often impose. It is therefore important to highlight that the arenas where social capitals are sourced from and mediated through by Setiu fishers to access other livelihood resources consist of local frameworks that are locally specific but adjustable according to their current situation.

This flexibility creates site-specific practices that best reflect the needs of fisherfolks for any given context and situation. This helps to explain reactions by fisherfolk which might otherwise seem counterintuitive; thus the (relative) disadvantages such as lower market price in the monopsonic market of Gong Batu are in fact permitted to exist or tolerated by many local fishers due to the lower demand from the local market as well as the less apparent advantages that they receive from their *Towkay-Awak* relations, while the Rhu Sepuluh line fishers willingly offer their support to purse seiners in return for fishing bait. Furthermore, more than just market oriented, these relationships are embedded with emotional bonds that hold important meanings to the Setiu small-scale fishers. It would therefore be an exaggeration to label Setiu fishers as an exploited group. In reality, they are most apt at maneuvering their way through various access barriers using the social capital assets they have at hand, and are not hesitant to claim various livelihood resources that they perceive as rightfully theirs, such as better access to government aids and subsidies, creation of artificial reefs and protection of their coastal resources from illegal encroachment. As highlighted in Chapter VI, these social arrangements are in fact made to provide the best condition for their designated fishing strategies, including their use of artificial reefs sites, which they either share, or barter or defend accordingly. It has also been revealed that some have greater resilience within this system than others. For this reason, greater attention needs to be paid to any strains that might arise in the range of sources necessary to secure livelihood, including, for instance, migration, ethnicity and ethnic conflict.

Finally, the research findings suggest that Setiu fishers do recognise the potential of artificial reefs in contributing towards a sustainable fishing livelihood in Setiu. There are more fish at artificial reefs and small-scale fishers, at least those who are technically able to use them as fishing grounds, would be able to improve their income by fishing there. But as often highlighted by critics of the SLF framework (see Ashley 2000), better economic outcome does not necessarily make a sustainable one too. It must however be noted that the most effective fishing method at artificial reefs, i.e *bubu* fishing, may not be a sustainable option for the local fishery (Hawkins et al 2007). It is therefore indeed a blessing (from a resource sustainability perspective) that not many have moved away from less effective gears due to financial limitations as their gear conversion to bubu fishing, which is currently practiced by only five fishers, could be destructive to the local fish stock. The use of sustainable fishing methods, such as line-fishing should instead be better supported. However for this to happen, the challenges mentioned earlier, namely the problem of access to artificial reefs programmes and location as well as issues in protecting resources at artificial reefs from illegal encroachment, need to be addressed. The first set of problems would require an improvement at the administrative level of artificial reefs programme implementation: It needs to be more user-friendly and participatory. Both of these attributes are highly rated by fishers in Southeast Asian region (Salayo et al 2008). The second problem is, however, more complex, as it involves local traditions and social relations. The creation of a community-based management framework of artificial reefs that is modeled on the local *unjang* institution might be a worthy solution. This move is especially timely as it will complement the LKIM's plan to introduce the mariculture concept of artificial reefs (LKIM officer, personal

communications in 2009) which will turn coastal fishers into 'marine farmers', referring to those who farm at artificial reefs.

More than just whether there's fish at artificial reef: new lessons learned and questions raised

This research points to several aspects of policy and future research in artificial reefs evaluation, where there is a dearth of research that is rooted in user-contributions. It is clear from the conversations and feedback from conference participants after my presentation of the research during the Conference on Artificial Reefs and Related habitat (CARAH 2009) that the evaluation of the impact of artificial reefs need to include the complex human dimensions (conference publication not available at time of writing). To date, this piece of research is the only empirical attempt using the livelihood approach. The framework used in this research also supports and affirms current efforts in proving its usefulness in understanding fisheries-based livelihood (Allison and Ellis 2001, Allison 2005, Allison and Horemans 2006), and is found to be a rigorous model that served the purposes of this research well. It could therefore be applied to researches dealing with similar topics and contexts or adapted for application in other types of researches on resource use in both marine and terrestrial settings. The thesis has also provided an update of some elements of Firth's (1975) monumental ethnographic work on the fisherfolks of Northeast Malaysian Peninsular which highlighted the continuation, modification seen in the transition to modernity, as well as the demise of traditional fishing gears, practices and norms in the process.

Based on the research findings, it is suggested that the revival and full recognition of *unjang* related codes of practice in application to artificial reefs management framework would position small-scale fisherfolks at centre-stage in coastal resource management, which will allow the use of their untapped traditional ecological knowledge in (scientific) monitoring and development of artificial reefs programmes. More significantly, it will put in place a locally sensitive fisheries-based institution that has the highest potential of acceptance and adherence by small-scale fishers as well as local commercial fishers due to the undisputed principle on which it is based: respect and recognition of effort made by fellow fisher friends. Once local fishers are officially recognised and effectively assume their role as artificial reefs farmers who contribute towards the maintenance and enhancement of their farms at sea, their right to harvesting the produces would not be disputed.

Finally, the research also raises new questions in the area of artificial reefs research in Setiu as well as in areas of similar context worldwide. Firstly, there is a pressing need to verify to what extent small-scale fishing techniques such as the increasingly popular and effective *bubu* fishing impacts the fisheries resources at artificial reefs. As mentioned earlier, there are, at the moment, only a few *bubu* fishers in Setiu and even lesser number practice this type of fishing intensively. However this may soon change due to the technique's apparent success. Secondly, it would be useful to consider in detail collaborative studies with local fishers to improve current understanding of the local marine environment and fish behaviour, as well as their exploitation especially in respect to seasonal resources such as squid and *Hokey* prawn to ensure their sustainability. Lastly, it may be worth looking closer into the dynamics behind decision making on policies specifically related to artificial

reefs at formal institutional level which matters much in the top-down Malaysian governance model , especially towards the establishment of a guideline for artificial reefs deployment in the country.

Appendix A

Guiding Interview Questions Sheet

The place of artificial reefs in the lives of fishing communities in Terengganu

House No:

A. Household survey: How does each household in the community make its living? How much does their livelihood depend on fisheries?

-Target population: every household in the village, where interviews will be conducted with 1) a representative(s) (designated member) of the household, as well as any other members of the household who are able to give insights into the livelihood strategies of the households in the village.

1. Tell me about this household. Who lives here, since when, what they do for a living (specify full or part time occupation) or to help the family (specify the activities involved)? Note: distinguish professed fishers and affiliated fishers.

2. How is the family getting by? Tell me more about its financial situation, (income sources, assets, needs and expenditures including debts).

3. Are fisheries important for the family? If so, how (for income, food, culture etc)?

B. Perceived AR impacts to local fisheries: What is the current state of fisheries in the area? Are artificial reefs perceived to have an impact on the fisheries activities by those who are involved in these activities?

-Target population: Professed and affiliated fishers identified during household survey and any other members of the community who are able to give insight into the state of local fisheries and the role that artificial reefs have in this.

1. Tell me about your fishing activities (type of fishery, history of involvement, technology and techniques used, level of exploitation).

2. Tell me what it's like to be a fisher in Setiu nowadays, compared to before (state of local fisheries). What makes a successful fisher? What are the contributing factors?

3. Tell me what you know about artificial reefs (history, location, specifications, users, owner, management and maintenance). How they relate to your fishing activities? Has it in any way changed the way people fish? How? Has it, in yr opinion changed the local marine environment? In what ways?

4. Would you know which artificial reef works and which one doesn't? How do you know?

Appendix B

Sample of an interview transcript

Pok Mat Ali and wife (household 1CPMA) on 28 May 2009, 11 am at their house in GB.
Note: PMA- Pok Mat Ali; W: his wife

How long have you been fishing?
PMA: Since I was a child, when we were still living in Kuala Setiu. We are both from there. At that time, I was working with then Gelama net, even when we were married. We move here perhaps in 1974. I was born in 1952 and she was born in 1959. Then I went to fish with the drift and deep gill net there in Kuala Setiu. I was fishing for Gelama when we moved here but it was not easy anymore by then. I was working on my father's boat. I stopped perhaps 7,8 years ago. Then I started using fish cage to fish.

Fishing with bubu (fish cage)
What made you decide to use fish trap?
PMA: Because I used to buy fish from people who used fish trap and I saw that they always catch a lot of fish. I used to buy fish from Fikri to bring to Terengganu. Over there, there're folks who've been fishing with fish trap for a long time already. But they are all quite elderly now. I used to watch how they made their fish cage and that's how I learned how to make them. When you fish with the cages, you don't really go to AR much but more to rocky bottoms. I do go to the small AR but the big ones are not good for me because the fish will not come out.

AR: old, smaller ones are better than new, big multiple storied one
There's not many AR in the area, is there?
PMA: There's a lot but with the big AR, the fish will not go into the cages. So I only use the smaller, older AR in the area. Those that have been here for many years, such as the tyre reef in front of the river mouth.

Do you go fishing in Chepu area?
PMA: No. I don't go there because with multiple storied AR, fish will not come out. And we can't put the cage too close to the structure, because the rope may get stuck. So we have to put it far from the AR. But at old AR, we can put the cages close to the structure. The older AR are smaller and lower in height. But not the new ones. So if the rope gets stuck, you can't pull the cage up.

Did you start with your own capital?
PMA: Yes. I started with RM1000 capital, with which I could make 30 cages. But the small ones. If you made the big ones, you can only get a few cages.

(the wife comes in with some drinks)
W: Sorry for the mess. You know how it is with schooling children.

How many children do you have?
PMA: 8 children.

W: One has just graduated from the university but is still looking for work. He was studying marine studies and had done her practical in Chendering. There some in school, and another taking a skill course and one in the nursing college.
PMA: Our son had just joined a woodcarving course in Besut with Wan Po. He will finish soon. There's only one left in primary school, in Standard 4.

Good income but sabotaged
Does fishing with fish cages bring good income?
PMA: It's good but this year, it's hasn't been too good because my fish cages got sabotaged by people.
W: All gone. They cut the rope off the cages.
PMA: Now I have to make new ones. We have lost 12 already. So I have 16 left now. I have 14 more to make now.

They cut the buoys off the rope but don't steal the fish or the cage?
PMA: They just cut the rope so that I couldn't retrieve the cage anymore. If they had cut it at the AR, I could still find it. But when it's located on the seafloor, it will be hard for me to find it. And they are not located close to one another.

What type of fish do you get usually at the AR?
PMA: Delah and Remong. As well as Mandi Abu. Merah you will get on the seabed.

Fishing knowledge.
You don't make unjang for ikan Merah for example?
PMA: No. There's a lot of Ikan Merah here around July and August. Sometimes I get Kerapu too but Jenahak is harder to catch, because it prefers AR that are closer to the coast, near the beach.

AR info and current status
How did you know about the AR locations. Were you told about it?
PMA: Nobody told me. I found out by observing where the line fishers go to fish and then I would mark the location, using land marking. At the new AR there are already fish but not suitable for me. They are of the multiple storied type. So when I fish, I have to put the cages a bit away from the structure. About 5 arm length from the Ar. But if it's the old AR, we can put it really close, up to just 2 arm length to the structure. If it's the big AR, there's a risk that the cage will get stuck and not come up when we pull it.

Small vs big AR
How about fish resources here. Is there a lot of fish?
PMA: There's not much fish here but there's quite some at the AR. But it's not easy for me to catch it. It's the same for the line fishers. They can't catch fish easily there. The fish keep playing within the structure. If it's a small AR, the fish will come out to play. Like the tyre reef, fish will play above the structure.

Do night purse seiners' operations at the AR affect your fishing?
PMA: Yes. Sometimes my fish cages get destroyed when they are in the area at night, as the ropes get entangled at their boat's propellers.

But what about the fish you're targeting?

PMA: We don't target the same type of fish. They catch demuduk, ebak and the likes. These fish do get into the fish cages but not into the small sized ones like mine.

Do you take orders to make fish cages for others?
W: He does.
PMA: I used to, for those Rhu 10 folks. They did come to order but I declined the offer. Not enough time this year.

How many do you make a year?
PMA: About 60 a year. I would lose at least 14, 15 pieces of it each year. I have already make RM40000 income from it this year. The least I would make each time I go out is around RM200. And I go 3 times a week. When there's a lot of fish, I could even make RM700 to RM800. And I have only about 40 cages left. Most of my catch is Kaci (mandi abu) and Merah. Sometimes I get crab too but not much. And I don't need bait.

Do we have to know how to select a good location to set the cage?
PMA: Yes. We have to know the locations where fish always go in. Folks who are not used to this would not know where to put the cage because it can't be set up just anywhere.

And all the while that Pok Mat goes fishing, what have you been doing?
W: I have only started making these baskets for sale. In the past, I was just selling things at the bazaar. I used to sell fish at home too.

You started to sell fish after you stopped working with Gelama net, right? Were you already living here?
PMA: We already lived here when I started selling fish. I was working for a tauke then. I was just taking fish from here to send to him in Terengganu. He would pay me by commission. The one that we buy for him is separate from what he pays us.
W: That means we would hold on to 2 fish cages from what we buy for him.
PMA: At the same time, I would bring my catch from the river, like Buluh and Anding. We used to work in the river, looking for cockles and clams but now that we have the shop, we can't go anymore.
W: Otherwise, we'd be in the river, looking for cockles every day. But no time to do that now because we have to wait at the shop. But we still go looking once in a while, when we find the time. So we buy from others. We have only started selling at the bazaar for about a year. We took over from someone because she didn't want to sell there anymore.

So in the past, you used to sell your catch and the fish from Fikri in Terengganu. But now, you sell your catch from the river here at the bazaar?
W: Yes. And he would bring home Gelama that are not suitable to be sold fresh to be made dried fish.
PMA: So we sell them as dried fish.
W: We used to go everyday to look for cockles and clams.
PMA: We would even send them to Tok Bali.
W: Actually, I had asked for the bazaar from the time they built the bazaar but they said that it was built for the Pengkalan Gelap folks. So the folks from there would come to us to get Belacan and dried fish to sell there. Then, Manaf came to see us and told us that I could sell there if I wanted to.

Do you bring your children with you to look for things in the river?

W: When they are back from school for a break, they do come along.
PMA: But just for fun.
W: We have 2 sons and 6 daughters.

Hardship because of schooling children.
So with the income that you make from fishing, can you save?
PMA: While the children are at school, we can't.
W: We can't. There's a few of them at school, you see. Each time one comes back, they need money for this and that. So there're many of them so we can't save much. We do save but just enough for rainy days. They do get a study loan but before the money is given to them, we have to give our money first.
But have you always been interested in business?
W: I have always done small businesses. From selling textiles to what not. We even made budu in the past.
PMA: We used to sell goods in the van too.
W: So we always did something and it has been good. At least we never had to borrow money from others. Like the time when our daughter was in the teaching college, we didn't take a loan but paid her education on our own. Every time we went to send the fish in Terengganu, we would send her some fish and what not so that she didn't need so much money to spend. She is now married with children already.
PMA: So now under our care, there're 5. Two in Terengganu, one in Besut and two more here. Actually, the one who has started teaching is still under our charge too.
W: She has just started working and so we need to cover for her too. Just for her phone bills alone, it's already RM200 a month.
PMA: With a salary of RM700, you can't survive there, because she has to eat out. So we do send her some rice and things for her to cook instead of eating out. Now, the son who is in the university is staying with her.

And this basket making, who taught you this?
W: No one did. I just watched others do it and tried to do it on my own. I get a lot of orders to make them but I don't have the time to do it. People in Pengkalan Kubur now take these baskets in bulks.

Are you not interested in line fishing?
PMA: Not at all. Even when others catch a lot with the line, I would not go.

Fish for food
What about fish for food?
PMA: We eat what we catch with our fish cage. And sometimes we would buy the other types of fish when we go sell our fish in Terengganu.
W: We can't be eating the same fish all the time. We'd get bored too. So the tauke sometimes give us Kembong and Selayang to take home.

Fish sale / supplementary income from cottage industry
Where do you send your fish?
PMA: We sell our fish in Cabang Tiga. We go send the fish ourselves. The tauke's price is not bad. When the supply is a lot, he'd buy a bit cheaper and if it's not, he'd give us a higher price.

Why don't you sell to Johari?
W: We did in the past.

PMA: The price difference is too high. He takes Merah at RM12 but we can get RM15 there. I just use my car to send the fish. I've carried RM1000 worth of fish with that car. I didn't have to carry much because it was Merah, which was already an expensive fish. I can load up to 4 small fibre boxes in the back and on the back seat another 2.
W: He also carries the Gelama from with that car too. The tauke would call him to let him know what fish he wants and Pok Li will buy the fish for him.

Are you paid immediately in cash?
PMA: Yes. When I take fish that I buy for him, the profit is not so big. I could make RM100 per trip. But I don't do that every day. Just 3 times a week.
W: We do it as a side income, as we're going to send our fish there anyway.
So you are hardly home nowadays?
W: I will be there until late afternoon but some days, like when we are selling fish here, I would not open the shop. Sometimes we work at home to pack budu and vinegar for sale. People would call us to say that they want to buy budu and vinegar and we'll go and look for it.
PMA: That's why we always have to have a stock of vinegar in the house.
W: People really like the nypa palm vinegar, which we buy from Pengkalan Kubur. So I am not at the bazaar all the time.

Why fish cage popular
Why don't others use fish cage too, when there's more catch with this method?
PMA: They don't know how to make.
W: Many people actually asked us to make for them. I would help him to make the fish cage, just the *unjap* (cage opening).
PMA: You can't fish long with bubu. You start in March and you stop in October, or latest November.

Kurau netting is better than prawn netting
Don't you go netting for prawn?
PMA: I don't. I don't jig for squid either. I just go netting along the beach, for Kurau. But there's not much this year. Rather than prawn, I prefer to net for Kurau. It could be caught just off the beach using a sprat net during the monsoon season. They come with the big waves and could be found there where the waves break.
W: Last year was not bad for Kurau fish. We sell it fresh.
PMA: And the price is like Merah too. But it's a seasonal fish.

Basket weaving
Do you make a good profit from selling these lekar baskets?
W: If we paid people to do it, we don't make so much profit. We have to pay RM1.50 for each and we have to provide the materials. But if we do it ourselves, with a 50 sen worth of material, we have enough for more than a basket. Then we can sell it at RM10 for three, if the design is simple like this one. A lot of people order for wedding decorations too nowadays.
PMA: People do like to use it for weddings nowadays.

Why not popular
Would you say that fishing with fish cages can make a good income?
PMA: For me, yes but others may not be interested. So I don't know.

What problems do you face with this method of fishing?

PMA: The only thing that can make we catch less fish is the quantity of cages that I make. The less I make, the less I catch. The capital is higher as well because you can't use them for more than one fishing season. It will corrode.

What about theft?
W: If they wanted to steal, what can we do?
PMA: Some of the thieves are from here and some are from outside. There're so many people at sea, and maybe they steal to bring home for food. So they take fish from one cage. That's how it is.
W: There are outsiders who fish here too.

What about the cutting the ropes of your fish cage?
PMA: That's to sabotage. There are those who are like that.
W: If they wanted to take the fish for food, we don't mind. But they make us lose our cages.
PMA: Most people are not keen to do fish cage because the capital is big and they will have to make again next year.

Technical knowledge of bubu making (learning, teaching, material)
Is it true that some people make cages that don't catch fish?
PMA: That's true. Many actually do. This is because their unjap is not designed right.

So did you have to try many times to get it right?
PMA: I tried it the first time and it worked right away. I learned by watching the elderly fishermen when they were making their cages. In would go home and try to do it myself. One would tell me to do it this way and another would tell me to it that way. But I tried to follow each one. And when I took the cages down to sea, they all worked.

They let you watch and learn?
W: They didn't mind because he was bringing their fish to the tauke. So they already knew him well.
PMA: In GB, there's Pok Chik Rani who likes to learn about fish cage making. But does admit that the one that he's been making is not working very well. So he doesn't use them anymore to fish.
W: He used to come here to learn how to make the cages. Last year he came very often here.
PMA: He spent RM2000 to make fish cages last year.
W: He came here to see how it's done and asked for instructions too. Pok Li also went to his house to see the one that he was making.
PMA: If you don't make them properly, you will have a lot of leftover material. But if you know how to make them well, you have just a bit of leftover material. So you don't waste.

Do you buy the materials or you look for them yourself?
PMA: We look ourselves. That's another reason why people don't want to do it. You have to look for rattan and wood materials. If you buy these materials, RM2000 would not be enough because rattan and wood is expensive. I look for them just in the bush here. **But now there's less rattan here because outsiders come to collect it.** If they don't come to take the rattan here, there'd still be a lot left. But this year, there's not much fish. Last year was very good. I've also been busy this year. Otherwise I would have at least 40 cages ready by now.
W: We have already collected the materials since the fasting month last year.
PMA: For the wood, we use the *Sarang Bubu* wood. It lasts a long time in the water. But this year, I have not had time to make new ones.

W: During the rainy season, we can't really work here because our land gets flooded, because it's low area. Last monsoon, the house was flooded.
PMA: The water drains slowly from here. We've been flooded twice already this year.

Land owneship
When you moved here, you were given this plot?
PMA: Yes. This was actually land that someone abandoned. So we applied for it and got the title.
W: You know, those folks who left to work for the agriculture plantation programmes further inland. So they abandoned this land. So we reapplied for it.
PMA: The initial owners paid just over RM100 for this land. When we paid for it, it was RM270.

How long have you been here then?
PMA: More than 20 years already. We moved here in 1973. We were still living on the beach in 1970.

Less catch but more income
How different is fishing today id compared to the past?
PMA: It is much better now. Even if the catch is less, the price is better. So it's better now.

Help from children
What about your children who have now grown up and working? Do they still need your support?
W: Not really. They do help us in fact with a bit of money to help pay for their younger sibling's education, that one who is already teaching now. Whenever she comes back, she always gives us money to pay for school fees and what not.

Hardship due to children schooling / pawn as source of income
Have you ever been in such hardship that you had to borrow money from people, for example?
PMA: We have been in such situation but we would not borrow from people. We pawn our belongings instead.
W: That is our only resort. Like when our child first went to the teacher's college. She studied in Johor, you see. Also, we needed cash to buy fish. So we would pawn our jewelleries. But it's ok, it's our own belonging so we don't burden anyone else. When we have Rezeki, we go and claim it back. So we would not borrow from people. When we have Rezeki, we buy a bit, even if it's just a small chain, for the sake of the future. We know that we have many children.

Do your children get any assistance for their schooling, like scholarship?
PMA: No.
W: The youngest one who is in primary school doesn't get any assistance. Other people's children did but not ours.
PMA: They said it's because we have a car. So we are considered to already have enough.
W: But actually, many of the families that got it do have cars too. But it's ok we say. It's not our Rezeki.

So from netting for Gelama, you stopped to fish with fish cage because you saw that it was a good way to catch fish. Was there more fish then if compared to now?

PMA: In those days, there was really a lot of fish. I used to take the fish by van and it would always be full with fish. I would actually make RM300 per trip of fish.
W: He used to just take fish on behalf of others. He was using just an old battered wagon to take the fish. Then the tauke came out with the capital to buy a lorry to bring the fish.
PMA: The tauke was the owner of the fish cages you see.
W: So we had a lorry then but the tauke has already sold it now because there's no more fish to take from here. The fish cage fishers who worked for him no longer went to fish due to old age.

Is the tauke a Malay or Chinese tauke?
PMA: Now is a Malay but the previous one was Chinese.
W: The Chinese tauke helped us a lot. Bought the van, bought materials for us. If we said that we didn't have the money to buy the material, he would give us, as a loan.

Fish buying activity/ preference for ourside buyer
So now you don't take fish from others but sell your own, except for Gelama that you still take from the fishers in Fikri.
PMA: After the old man who fished for the tauke died, he stopped buying fish from here and sold the lorry. Johari has just started buying fish recently but we've been doing it for a long time already.
W: Yes, he has just started. My husband was the first to be buying fish from here. There was later Pok Awi but he bought the prawn form Pok Awi too.

So why do people sell to Johari now?
PMA: Because he has more capital. And rather than sell to their own, the village folks would rather sell to outsiders. It's like that anywhere. The moment an outsider comes, they will go to the outsider.

So if they wanted to sell to you, you would buy?
PMA: Yes.

And what about the price?
PMA: more or less the same but when we are from the same village, they would demand a higher price for their fish. But if the outsider sold at the same price, they would accept. You would hear them grumble but they will not go elsewhere. It's like that. **But if fellow villager bought at 5sen less, they would run off immediately.**

If you were their tauke, you would also sponsor their fishing material?
PMA: Yes.
W: Everything, yes. Their prawn net etc.

Recognition of other successful fisher
Is there anyone working for you now?
W: Not anymore but they still haven't settled their debt to us. Johari used to take fish from my Pok Li too, because he didn't have a fish cage yet. Now he takes charge/care of those Beting Lintang folks who fish for him.
PMA: **But Pok Teh is not catching a lot of fish of fish anymore. But he has a lot of cages. If there's one who gets a lot of fish, it's there in Rhu 10.**

You mean Pok Mat?

W: Yes, that's the one!
PMA: He came to learn from me. I don't go fishing there because there's just too many over there.
W: A lot of folks from Penarik are using the cages that he made.
PMA: And the other one has only started using the fish cage recently. Last year, those folks made RM1000 a day. They got many cages. 50 of them. Because of the success there that now more and more people are making cages.

So where do you usually put yr cages?
PMA: Just around the river mouth. There's just a few too so not worth going far.

Self acquired Fishing equipment
Did you buy yr boat yourself?
W: We did. We asked for assistance but we didn't get any. We've not once received any assistance yet. Once, his engine broke down at sea and he had to paddle his way back home! The fisheries officer had even come to check the engine himself and told my husband to get rid of the engine and he would give him a new one. But nothing to this today!

What engine do you use now?
PMA: 15hp. We bought a second-hand one. I used to have a 17 footer boat but I changed for a 20 footer now. It's ok because I don't carry any net with me. Otherwise, it would be too heavy for the engine. I usually set out in the morning but not early. Sometimes as late as 10 am. I would go to the shop first. Now that I have just a few, I come home quite early but when I had 40 cages, I'd be home quite late. I will check all my cages each time I go out.

On other fish cage fishers
Even when there's a lot of fish already? In Rhu 10, I heard once that Pok Mizan had to throw some of his catch because there wasn't enough space to put them.
PMA: There's always enough space to put fish even if all cages were full.
W: Fish in Rhu10 are smaller. We often stop there to ask for fish for food from those folks.
PMA: One fisher from there that I know is not catching much with his cage is Pok Chik.

That's true. I have gone fishing with him his cage did indeed not catch much.
PMA: When I visited him and saw his fish cage, I told him that his *unjap* was not correctly made and has to be repaired if he wanted to catch fish. But he wouldn't listen.
W: At that age, it is perhaps not easy to understand.
PMA: He would not listen. He has quite a few cages but they don't work. When I meet him at sea and ask him whether he got any fish, it's always a no. So I would give him a fish or two for food, Mandi Abu for him to bring home.

Do you know another one called Pok Ipin?
PMA: He had just started too. The last time I went there, there was Mat Jaga, Pok Chik, Mizan who were fishing with fish cage. There's Che Ngah too. He makes on his own too. With this fish cage, if you don't get fish after you've set them at sea for three times, you'd better bring them up and repair. You would then know that it's not working.

Depleting resources
What about fish resources? Is there a difference between now and in the past?
PMA: There used to be much more back then. There wasn't many who used fish cage to fish then.

But there is still very few fishers who use fish cage here. Just Pok Teh and you, right?
PMA: yes, but there's a lot less fish. In the past, I just set up my cages around the rocky bottom but now there are a lot of people who net there. There's where you can find Delah and Kerapu. So now people net with Kaya net in those area so there's less fish now.

Fishing knowledge
I was told by one Rhu 10 fisher that there was a lot of Merah last year because there was less trawlers encroaching last year. What do you think?
PMA: Merah are mainly found nearer to the coast and trawlers don't usually come in here. And Merah are not found just anywhere. They like a mixture of bottom type. Not soft nor hard.

So when you set your fish cage, you have a certain species in mind and would choose the location based on what you know to be its preference?
PMA: Yes. I'll go where I know the fish will go in.

Is it also season based? Like during the Merah season, you will target Merah?
PMA: yes. So I will catch less Mandi Abu. It is available all year long but during the Merah season, I don't get to catch much of it. So when there's a lot of Mandi Abu, there's no Merah at all, or maybe just one or two. Mandi Abu, likes rough bottom, like terenas and what not. They roam in rocky areas.

Landmarking
Now you do land-marking right? So you can find the location in general but not exactly wher you've put your cages in case someone cuts the rope off?
PMA: yes, because the fish cages are located quite far apart of one another. If there's close to one another, we could estimate where the others are if we found one.

Business helps increase income / black magic sabotage
With the business that you run, does it help increase the household income?
PMA: It does.
W: yes it does. We do it because it can increase our income.
PMA: We can make a good income with it but we've spent so much to **cleanse** the shop, because it had been sabotaged already.
W: that's why the previous owner didn't want to sell anymore. She could not sell a thing because of the spell that has been put on the shop. She had found out because she met a customer who said that her stall felt very gloomy and dark, as if it's not open. So the customer advised her to leave the shop. And then she found out that it was true what the client said. She found the thing that was planted at her shop. The shop seemed full of things, more than others.
PMA: yesterday, we couldn't make a sale. Only RM2. So we just depend on things that other people sell for us. But we say it's ok. We will have the Rezeki that God wants to bestow on us.

What about those who sabotage your fish cages? Are they line fishers or net fishers, or fellow fish cage fisher, you think?
PMA: I think it's those net fishers. They do it because they are not happy with me. They actually look for the cages.
W: But it's ok. God is great. So we just pray that he will bestow us with plentiful Rezeki and so if they want to do that, let them. The same with the shop, we sell what we can and we still

make a profit. At least a RM100. We just hold on to that. People still come to take our bubu for example. Folks from Terengganu always come to take from us.

So you make budu every year?
PMA: No. we take the budu that has been made by others.
W: We don't have the time to make on our own. So, we buy from others here and we bottle and pack it for retail.

So you're like a whole-seller, then?
PMA: yes. We buy in bulk and then we pack them in bottles.
W: We do the same with the pickled fish. Whatever people want, we will look and sell to them. Maybe when they see that people always call us for products, they feel jealous and so they sabotage our fish cages.
PMA: These baskets, she can make 10 a day id we had the time

How do you manage your household income?
W: WE both contribute to covert our household expenses. When I need to buy, I will spend and when he wants to buy something, he pays. We pool our money together to raise the capital.

Fish for food
From your catch, do you pick fish to eat at home first or for sale?
PMA: For sale first. Then we take the rest home.
W: We do take fish home but we put in the one we want to sell first.
PMA: I take only 5,6 pieces home.
W: And sometimes we have plans to give some of the fish to people, so we will take that aside too. Our relatives and friends who come visit us or whenever we go and visit them. Even our budu and Belacan, we will bring to give them some. When we were just selling here, we do give our fish away for free too.

AR site suitability (a fisher's perspective – fish catchability)
Why is there not many AR in this area, if compared to Chepu area for example?
PMA: There's a lot of AR there but there's not much fish because they do not put it at the right spots. Furthermore, they put the AR where there are already natural rocks. So fish play at the rock and so they don't go to the AR anymore. It's better to locate AR far from the rocky areas. Even if the AR are small, fish will go in but if they're located close to the rocks, like in Chepu, they would not go in even if the AR is big. There's more fish here in the older, smaller AR. But there are more fish in the Penarik waters than here because there're more rough substrates in the area.

AR is secondary fishing location for cage fishers
Is the sea bottom here soft?
PMA: Well, the place where the set up the new AR is already a hard bottomed area but the one they did in Chepu is in soft bottom area. Here, it is also rough substrate area. It is ok if they add more AR here. The line-fishers would like that. For me, it doesn't make much difference because we fish cage fishers only go to AR area for a short time. Once Ikan Merah season comes, we don't go there anymore. They start coming in May and then they become less in June and July. That's when they go further at sea. Then they come back around August and will be around until October. Last year, they came earlier. They were already here in July. But this year, we don't know yet. There was some recently but no more now. When I fish at

AR, it's to catch Dengkis, Delah, Kerapu and Bayan. We don't get Ebek and all those middle surface fish. Gerong would go in once in a while. Jenahak prefers AR in shallow areas. Like in Penarik, they could be fished at the AR near the coast.

But you know where most AR are located then?
PMA: Yes, just by watching the line-fishers. I sometimes go close to where the line fishers are fishing to check the location. When you go there often, it's ok to set up yr cages there but if you don't then they will throw out your fish cage, because they consider you an outsider. But if we go often, then it's alright. In the past, I used to have to chase after people who take out my bubu. All the way to Merang. But there's more fish here, because there's too many bubu there. Last year, I didn't go set my fish cage there at all. But I used to have to chase after my bubu.
W: Until the beach!
PMA: But after that they dared not do it anymore. It was someone from Rhu 10. It was Pok Hamid. He's a line fisher actually.
W: He is a line fisher but he came up to the fish seller with a lot of Ikan Merah. So the other line fishers got suspicious because they have not been able to catch Ikan Merah at all with their line. So they let us know. I was informed by the fish seller in Rhu 10, because I sell my fish there too. I sell to Jali. And that time, we saw him take up a fish catch to the beach and I thought to myself, that's my fish cage. So the next time I went to check my fish cages, I used a different boat, so he would not recognize me when I approach. I used a small boat, a 14 footer and I saw him there where I left my bubu. He pulled the cage, had a smoke and then left. After he had left, I went to check my cage and he had taken the fish without opening the unjap properly. He opened the cage from the middle, which left the cage agape. He didn't care because it wasn't his bubu.
W: That way, the bubu can't be used anymore after that.
PMA: Then he went to the next one and it was the same thing. That's when I went to chase after him and knew who the thief was. He never did it again after that.

No punishment for thieves/ protection from fishers from same village/port
But what happens when you catch these thieves?
PMA: We don't scold them. We just want to see who it is. During the chase, I met with Pok Chik and asked him whose boat it was. He said it could be someone from Penarik Baru.
W: He knew because he saw the boat no.
PMA: When the boat reached Penarik Baru, it stopped because it was out of fuel. So I thought he had already reached home but actually, he was stranded without fuel and was anchored on one of the squid cages. So I went closer just to see who it was and that's when I was that it was a fellow from Rhu 10. But I didn't say anything. Then I went back to check my cages and went to Rhu 10 to sell my fish to Jali. At that time, he was there at the beach. So I said to Jali that this was the fellow who was taking my fish. Jail said it was no wonder that he had come to sell fish this morning. He didn't have much, just RM50. He said he returned early because he has something to do when actually, he was being chased by me. But he never did it again after that. But I don't set my cages there anymore either. There's theft here too but they just take the fish. But the worst is when the cut the markers off the rope because then it's all gone.
W: We don't mind so much if they just take the fish but they sabotage us too.

Less competition is better
Do people sometimes ask your permission to take fish from your cage, because they want to eat say Mandi Abu?

W: I have not heard of it before.
PMA: Some do, but they ask from our catch. In the past, there weren't many bubu fishers in Rhu 10. There was me and Mamat. But I wasn't selling at Rhu 10. But soon, people found out.
W: He didn't want people to know.
PMA: But eventually, people found out anyway, because we meet at sea. In the beginning, they knew that I was bubu fishing but they didn't know whether I was catching any or not. I didn't bring the fish up in Rhu 10 because I didn't want people to know that I was making a good catch there.

So you think that with bubu fishing, if there's more involved, there'd be less catch?
PMA: Yes. There are places where there's fish and where there's none. Like in Pengkalan Gelap, there's no fish of this type. So when there's many involved you have to move after each bubu check. So now I just set my cage here, but there's more fish there. There's less fish in Penarik too. The fish are in Rhu 10 and Kg Baru. Then further south, it's in Telaga Papan. There's no bubu there but there's fish to catch. There's some bubu fishers in Merang so they set their bubu there.

The thing with bubu fishing is, i f you're lazy, you will not succeed. You have to work hard. You must always move your bubu. Mamat catches a lot if fish because he's hardworking. He used to watch me work and learned that we must not leave our cages fixed at one site. They must be moved around.

Unjang
Perhaps that's another reason why Pok Chik is not catching anything with his bubu. He hardly moves his bubu. But he is willing to sets up unjang.
PMA: With unjang, you can only fish twice. Then there's no more fish. You have to leave it for a week then only can you return again. Last year, many unjangs were set up here. It's actually good for me too because more fish will come and I could catch fish even if I set my bubu a distance away from the unjang, say like from here to the road there (about 30 m). Fish would come in. Those who fish will get one or two but I will get more in my bubu.

So why don't you set up unjang for your bubu?
PMA: I don't have the energy. Say you set it up today, but the next day you go, you can't put it there anymore because you always have to move yr bubu. If we don't put it there, people would line fish instead so there's not much benefit for me to gain. But line fishers need the unjang. We bubu fishers could also use it but we'll need a lot and I have no energy to do them.

This year's bubu fishing
So far, until now, how's the fishing this year.
PMA: Before our bubu got cut off, I made quite a lot already. I managed to make more than RM100 with 14, 15 bubus. But now, there's not one left!
W: he's making another batch of 14 bubus now.
PMA: I have lost all that I made this year but they are all gone now. So, I'm making new ones to set up. W: The ones that were sabotaged were actually this year's.
PMA: I actually made 17 bubus. They sabotaged 10 and I had 7 left. So I took them up again and made another 7. So I have 14 now. I want to add more if I can. I could make around RM100 with those 14 bubus but it's not worth the effort. The fuel cost between 14 and 40 bubus are not much different. So if each trip with 40 bubus costs RM40 and RM30 for 14

bubu, might as well work with 40bubu. So now I have to go look for rattan. I used to make 3 a day but now, I can only make 2 a day.
W: Because before I started selling at the shop, I used to help him with it. So we could do it together until evening. I just help with tying the wires together.
PMA: We are delayed because we have yet to look for rattan.

Pok Mamat bought the rattan last year because he didn't have time to look for them last year.
W: Yes, he usually buys the materials. But there's a lot of rattan in his area too if he went to look. If the bubu is made for the tauke he would order the materials that are need. So it's ok not to look for them ourselves.
PMA: There used to be a lot of rattan in Guntung before they started planting oil palm.

Own bubu
So when the bubu belongs to the tauke, you cut is only based on the commission, right? How much do you make for every RM100 for example?
PMA: It would depend on the weight. I get RM1 on every kg of fish. So the Chinese tauke pays for the whole bubu, materials and the fish and he just pays us for looking after his operations here based on the amount of fish that I bring to him. So if there's 100kg of fish, then I will make RM100. I am just working for him on land.
W: He provides the ice too. And the RM1 per kg is just for us.

So how does he pay the fishers that work for him?
PMA: that is between them and the tauke. We just get the commission.

Price of fish/ knowledge of fishing ground
When you started to do bubu fishing, you went on yr own right away?
PMA: Yes. And I didn't sell to Chinese tauke anymore because he sells fish for export so his price is not very high when he takes it. So I sell my fish to the market sellers. The exported fish are Delah, Bayan and Dengkis. And there're a few types of Dengkis. The spotted one they call Dengkis, the striped one they all Liban. The most expensive one is the white one. The green Bayan and Kerapu Tikus are also exported. In Terengganu, the expensive fish now is Bayan with a big hump (Humphead Wrasse) and one line fisher got one and was paid RM80 a kg for it! That fish are not found here because they like very rocky arteas like around the idlands. For the Kerapu Tikus, they pay RM50. Kerapu Pisang is only RM30 to RM40 here. I have not had any this year but I caught a few last year. This year, just the round type Kerapu. Kerapu Pisang is found mainly in the rocks near Bari. Sometimes at that reef near Rhu 10 too. That fish always play at rocky areas. He one I catch normally are the same type as the one people rear in fish farms. It sells at RM14, 15 a kg.

Preference to work on his own time
You don't rear fish here?
PMA: I used to. When it was first started, I was in the programme, together with Pok Imam. Then I stopped. At that time, we were given a salary to be involved in the programme. So we could not to any other work. That's why I went to work for the tauke in Terengganu.
W: We were already running a fish sale business then.
PMA: We were selling my catch from the river.
W: We were operating with a motorbike only back then. He would bring a barrel on the motorbike for sale in Kuala Terengganu.
PMA: Yes, I'd carry fish in front and at the rear of the motorbike.

Somebody comes asking for fish and he told him that there's no more fish to sell.
PMA: I usually sell my fish as soon as I come up.
W: And sometimes people come here to buy, especially those teachers, when they want eat some Ikan Merah. But at this house, we don't eat much of it anymore. Only when the children are back home do we prepare it for them.
PMA: When I go to the market, I would usually bring back Ikan Aya or Kembong home
W: For some reason, our own fish are not very palatable to us anymore.

Did you fish in the river?
PMA: Not really. I was using sprat net to fish along the beach.
W: When we went looking for cockles and clams, he used to go trap crabs in the river too.

Hard work for children's schooling
I hear that those who work in the river can make a good income nowadays.
PMA: That's right. Before we started selling at the shop, we used to make RM60 a day, with the 2 of us working.
W: On Fridays, I would go with him in the morning and when he goes to Friday prayer, he would leave me there and come back afterwards. I would be there in the river, looking for cockles and clam. We were paid RM1 a kg only then. Now it's a bit higher the price. At that time, we were hardly at home because we were out working here and there, because we have so many children in school. Each time they come back, they would need to be given pocket money and the fees for the boarding school. Once we had 3 children in secondary school. That was really hard times for us. But RM60 was what we could at least make a day.
PMA: Once every other day. We don't go every day.

So thank you very much for your assistance.

(54.30)

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